SYS.TE/M FAIL.U+RE: Revelations of the Interface

A group exhibition featuring work by

Nick Briz
Jennifer Chan
Adrienne Crossman
Ezra Hanson-White

Curated by

Shauna Jean Doherty

A thesis exhibition presented to OCAD University in partial fulfillment
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Revelations of the Interface

Criticism and Curatorial Practice (MFA)
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ABSTRACT

SYS.TE/M FAIL.U+RE: Revelations of the Interface is an exhibition of glitch video works that deconstruct the digital objects that have become fully integrated into the contemporary technological landscape. In this curated show through the mobilization of technological error artists, Nick Briz (Chicago), Jennifer Chan (New York), Adrienne Crossman (Toronto) and Ezra Hanson-White (Seattle) individually respond to the premise that to examine the effects of the technology that surrounds we must first render it visible. The featured works reflect on the conditions of contemporary digital culture and the pervasive presence of digital interfaces. By purposefully revealing the constitutional elements of digital information, glitch art acts as a resistive form that combats the transparency of digital media and the passive engagement it enables.

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Introduction

> The need to keep questioning our situation remains more pressing than ever, especially as technology itself is made invisible and becomes an integral part of the very fabric of our existence.
>
> (Gere 224)

SYS.TE/M FAIL.U+RE: Revelations of the Interface is a thesis exhibition of glitch video works curated by the author that examines the increasing invisibility of digital information and devices. Through the mobilization of technological error in both process and aesthetics artists, Nick Briz (Chicago), Jennifer Chan (New York), Adrienne Crossman (Toronto) and Ezra Hanson-White (Seattle) reflect upon the current conditions of contemporary digital culture and the pervasive presence of the digital interface. The artists featured in the exhibition share an impulse to interrogate the constitutive elements of digital technologies in order to foreground their structures, conventions and deeper institutional underpinnings and social effects. In this digital age technology is highly advanced, streamlined and complexly designed. Digital devices are organized by a range of design components including the arcane code of computer software to the aesthetics of the digital screen. For the purposes of unimpeded user engagement, code is routinely obfuscated and interfaces are seamlessly rendered. In contemporary technoculture digital technology is designed to become fully integrated into the lives of their users. This is achieved partially through their intended imperceptibility or invisibility. Glitch art, then, is a subversive aesthetic and method that breaks the unified appearance of digital objects. Through the instigation and application of digital failure glitch artists reveal the hidden nature of technological design and the structures of digital

information. In their exploitation of technological failure, the artists featured in this exhibition, and glitch artists more generally pose urgent questions that address the effects of advanced technologies. Through artistic practice glitch artists offer alternative aesthetic forms and modes of engagement in a digital moment that celebrates pixel perfection and user passivity.

In addition to this formal exhibition, the accompanying text provides an historical overview of artists, beginning in the early 20th century, who have often subversively engaged with technology in order to interrogate its broader cultural and social implications. This history describes the foundational events that have given the contemporary glitch genre its shape. Glitch art is a distinctive form that has emerged in its contemporary iteration within new media art over the past 10 years. Through their investigation of technological failure, glitch artists enable a discussion of technological ubiquity and progress through creative practice. Together, my exhibition and this supplementary essay offer an examination of the glitch art aesthetic, its historical precursors and its situatedness in this contemporary digital moment. The following text is organized into four components: The Glitch as Concept and Process, Digital Culture: Past and Present, Revelations of the Interface, and Pre-glitch Practices and Present Practitioners. The artists featured in *SYS.TE/M FAIL.U+RE: Revelations of the Interface* and their works are cited throughout this essay creating linkages between glitch art's historical precedents and contemporary glitch practices. These sections serve as the theoretical and historical framework for my MFA thesis exhibition, *SYS.TE/M FAIL.U+RE: Revelations of the Interface*.

The Glitch as Concept and Process

In this contemporary technological landscape, digital devices are perceived as mechanisms of advanced progress and precision that demand little consideration when they function optimally. This precision, however, is not without its ideological, cultural and social assumptions and consequences. As Kevin Robins and Frank Webster argue in their text *Times of Technoculture* (1999), digital technology is often mistakenly regarded as benign, neutral, and inevitable (68-70). Through repetition and hermetic design, digital technologies have become ever integrated into our lives while their underlying structures and functional details elude us, pushing technology's social effects further into obscurity. In Benjamin Mako Hill's, "Revealing Errors" (2011), the author maintains that, "While technologies, and communications technologies in particular, have a powerful mediating impact, many of the most pervasive effects are taken for granted by most users. When technology works smoothly, its nature and effects are invisible" (27). In an effort to combat technological naturalization and a boundless enthusiasm towards technological progress, various artist groups throughout history have proposed alternative uses of technologically advanced machines.

Beginning in the late 1990s and early 2000's there has surfaced a group of artists, predominantly online, who adopt the failure of digital technology as both the dominant figure and method in their work in order to interrogate the inner workings of complex digital systems and the complicated conditions of this digital age. Contemporary glitch artists engage in both the formal aesthetics of digital error and the process through which such visuals are produced through either

simulation or experimentation. By corrupting digital data glitch artists produce unique and damaged artworks that critique the devices that populate this digital age.

The locus of this creative and deconstructive output is primarily the digital screen which stands as one of two pervasive apparatuses that mediate the user's perception and consumption of digital information. Glitch artists also manipulate the computer's coded software, composed of a machine language that is typically obscured or removed from the viewer. Together, these elements, software and hardware, constitute the digital interface and are the primary materials with which glitch art experimentation is practiced. When operating as intended by its designers the interface appears as a unified entity that allows for the user's unimpeded engagement.[1] This enables interaction with digital information without the user's direct observation of the methods through which their experience is mediated. Early developments in Human-Computer Interaction mandated that the interface should not encroach on the user's experience.[2] For purposes of usability the digital interface is designed to be at once accessible and undetected. Michael Tchao, Vice President of iPad Product Marketing, voices this persistent sentiment in a 2012 Apple iPad commercial noting, "We think that technology is at its best when it's invisible, when you're conscious only of what you're doing, not the device you're doing it with. An iPad is the perfect expression of this ideal." Rarely acknowledged by the producers and purveyors of these digital devices are their entrenched ideologies of technological advancement,

[1] The intended transparency of the digital interface and a theoretical consideration of this design feature is described by Steven Johnson in *Interface Culture* (1997), Soren Pold in his text *Interface Realisms: The Interface as Aesthetic Form* (2005), and most recently by Alexander Galloway in *The Interface Effect* (2012).
[2] The first dedicated study of Human-Computer Interaction was outlined by authors Card, Monan, and Newell in their 1983 text, *The Psychology of Human-Computer Interaction.*

sanitized perfection, and maximum efficiency (Nunes 34). Glitch artists critique, leverage, and unsettle these ideals to offer alternatives within this contemporary digital paradigm. It is when digital technologies are disassembled that their pervasive presence and technical details can be revealed.

A definition of *glitch* must be established in order to productively investigate its theoretical and technical applications within glitch art practices. Once the term's technical definition has been established its broader aesthetic and conceptual implications can be determined, encompassing the varying works and practices relevant to the production and presentation of glitch art. In most accounts the word glitch is said to have first emerged in the English language in 1962, during the execution of the American space program.[3] In the writings of astronaut John Glenn, the word glitch was used to refer to a spike or change in voltage in an electrical current, experienced by the astronaut during the space tour (Menkman, *The Glitch Moment(um)* 26-27). Glenn later generalized the term from dealing specifically with electronics to describe broader technical problems that occurred while on his astral voyage. As glitch theorists Olga Goriunova and Alexei Shulgin explain in Matthew Fuller's *Software Studies: A Lexicon*, “This term [glitch] is usually identified as jargon, used in electronic industries and services...In electrical systems, a glitch is a short-lived error in a system or machine. A glitch appears as a defect (a voltage-change or signal of the wrong duration – a change of input) in an electrical circuit” (110). Based on its original definition the term glitch is typically associated with technical occurrences that are disruptive, undesirable, and unanticipated.

[3] Further investigation reveals that the word glitch is derived from the Yiddish, גליצ, meaning to slip or to fall.

Since its conception, popular use of the term has exceeded its purely technical use and now describes a wide variety of unexpected phenomenon. In computing terms, a glitch is understood as the consequence of an interruption within one or more digital information flows. In the context of computer software, a glitch is an unanticipated or abnormal change in a system's behaviour. Despite attempts to banish technological error through design, glitches are a recurring phenomenon in contemporary computer culture (Goriunova and Shulgin 110).

Within the discourse of glitch studies the visual manifestation of a technological error, a pixelated video, a fragmented image, or an indefinitely spinning pinwheel on a MAC operating system, is in fact evidence of a program's "failure to fully fail" (Manon and Temkin) as a digital device attempts to complete a task that either overloads its technical capacities or disrupts its function with corrupted data.

In this technological landscape all digital information is encoded, often with the help of compressions, to store or transfer data more efficiently. When engaging with digital data the viewer is typically unaware of the code that composes the form. Usability theorist and designer, Theodore Davis writes in his text, *The Precise Mishandling of the Digital Image Structure* (2011)*, "*As common file formats, such as the JPEG/GIF/PNG, are used to store and share digital images across the Internet, awareness of the media itself is rare…To the average user, this process is seemingly mundane – that is until a glitch occurs along the path of transmission…" (211-212). By intentionally damaging digital information and disrupting digital flows glitch artists bring their structures of code and compression into view. Glitch art confronts its viewers with the obscured

operations of digital media, the extent to which computer users are restricted by programmed design, and the visual artifacts that can be produced when these structures are intentionally or unintentionally broken down.

In the non-art world data, glitches cause unwanted disruptions in computer user experience. A corruption can render a file unusable, unrecognizable, or unpredictably altered. This moment of tragedy for the common computer user is fodder for the glitch artist who embraces these failures and inserts them purposefully into their work. The computer screen serves as the canvas for the manifestation of intentional coded mistakes (Donaldson).

Glitch art brings into relief the anatomy of digital media, presenting digital information in a form that departs from its *normal* or *ideal* state.[4] As cinema scholar Hugh S. Manon and glitch artist Daniel Temkin explain in their text "Notes on Glitch":

> When glitches manifest, they are a sudden phenomenological intrusion, a break in the order of logic. The shock comes because when we work with the machine we are contained by it. A glitch ruptures this immersive environment, undercutting the sovereignty of the digital by revealing its pervasiveness. (7)

A technical breakdown removes the computer user from the consuming and unified experience of the screen, drawing attention to the components that are at work when a user engages with a digital system. The mobilization of glitches in art exposes the depths of the digital typically regarded for its surface qualities of immutable cleanliness, familiarity and reliability. As new media theorist Mikhel Proulx writes, "In visualizing technological failures, the glitch compels a view past

[4] The conception of technology as ideal is described as a constructed social phenomenon in Fred Turner's *From Counterculture to Cyberculture* (2006) and Theodore Davis's *The Precise Mishandling of the Digital Image Structure* (2011).

the controlled surface of the digital image" (24). Glitch artists exploit that which is uncertain and ambiguous in digital systems (qualities that are considered counter to their rational and efficient nature). Glitch art as a form exposes the operations of digital systems and challenges the viewer to consider digital information in alternative ways. As glitch theorist contends, "…the glitch emphasizes what is normally rejected as a flaw and subsequently shows that accidents and errors can also be welcomed as new forms of usability" ("Glitch Art Manifesto" 343).

Glitch artists migrate digital glitches from the technical realm to the domain of artistic production, creating space for the reflection on glitches in both their technical and creative capacities. United by the appearance of a broken and chaotic interface, glitch artists intentionally damage, modify or corrupt sets of data in order to reveal the often obscured processes of computers and push against their technical restrictions. A digital video that is damaged or corrupted, for example, degrades into individual and fragmented frames, illustrating the raw material that it is composed of. Glitch practitioners subvert the artifice of pixel perfection and exploit the limitations of digital media by refusing the smooth and clean appearance of commercial computer interfaces and digital files.

The visual manifestation of a digital glitch is evidence of the ghost in the machine that can both challenge and mesmerize the viewer. In his 2008 text, *Digital Culture*, media theorist, Charlie Gere refers to the magical or phantasmal quality of digital objects, describing their ineffable and immaterial characteristics, which include, "a whole array of supernatural figures, such as angels, ghosts, and golems" (19). The glitch is a spectre that offers access to the unexpected and volatile within a computerized system. Its simulation or initiation in glitch art

rehearses the anxiety of technological autonomy and domination, exploring the disturbing moments when technology falls out of human control. Digital media theorist Tim Barker describes a glitch as a moment in which a device, after being fabricated by human hands, becomes itself creative (42). Glitch artists embrace the unknown embedded within technological systems, generating works that are a unique combination of human initiation and computer-based creation. These artists *collaborate* with the computer rather than simply using it as a vessel for the creation of visual expressions. Barker contends that, "...as the unique generative qualities of error are actualized, the artist can no longer be thought of as the sole creative force" (56). This innovative interaction establishes glitch art as a provocative genre in which the actual work of the artist is largely reduced. As early as 1970, cinema scholar Gene Youngblood recognized the collaborative nature of computer-based artistic production. In his text, *Expanded Cinema* (1970) Youngblood cites the computer's active role in the creative process, describing its collaborative capacities wherein "the man/machine symbiosis is synergetic" (191). Youngblood quotes American engineer A.M. Noll to describe the active role of the computer in artistic practice circa 1970. From Noll:

> Most certainly the computer is an electronic device capable of performing only those operations that it has been explicitly instructed to perform. This usually leads to the portrayal of the computer as a powerful tool but one incapable of any true creativity. However, if 'creativity' is restricted to mean the production of the unconventional or the unpredicted, then the computer should instead be portrayed as a creative medium – an active and creative collaborator with the artist…In this sense the computer actively takes over some of the artist's creative search. (192)

In deploying the digital error, glitch artists shift the focus from object to process, marking a "...moment when the medium itself shines through and becomes important" (Gere 213). According to Barker, the glitch artist's role is to

create the conditions in which “...errors manifest, and to exploit these errors in the art making process” (43). Glitch artists transform a typically technical condition into a creative one. It is through their choice of files and corruption techniques that glitch artists gain creative autonomy.

Glitch art establishes new relationships between artists, technology, and viewers through the centralization of the digital device and the concurrent subversion of its conventional appearance and use. The exhibition of glitch artworks inspires the viewer to consider the abstract meaning of error in an errorless digital paradigm. For Barker, “the error is something internal to the machine, it is something that is immanent to the machine's process” (43). Glitch artists provoke errors that are inherent within digital systems as a way of understanding their function. Media studies scholar Mark Nunes describes the significance of disruption in technical terms, “Error reveals not only a system's failure, but also its operational logic” (3). Digital glitches reveal the way in which digital systems are organized by rendering their structural components visible.

The work of Paul Virilio and Sylvère Lotringer offers a significant contribution to the notion of failure as a means to conceptualize the operations of a system as a whole. In their text, *The Accident of Art* (2005), the authors establish that failure or malfunction are inherent components of a general system, “...when you sail the first ship, fly the first plane or launch the first space capsule, you invent the crash” (88). Likewise, in the context of highly advanced digital systems, glitches remain an inevitable feature – when you invent the computer you invent the computer crash. Error or accident is presented in Virillio and Lotringer’s text as both prescribed and constructive, and capable of

generating space for the production of knowledge and the challenging of existing structures (both social and technical). By mapping the terrain for the accident in art, and the dialectic between function and dysfunction, the authors describe the philosophy that informs contemporary glitch practices (though not explicitly). Motivating this discussion is the authors' reflection on the impact of technology on perception and art production. Verging on Neo-Ludditism, Virillio playfully supports the artists' destruction of technology in the post-industrial age as a gesture of dissidence and discovery. He incites the artist to, "Penetrate the machine, explode it from the inside, dismantle the system to appropriate it" (74).

Artists practicing in the glitch genre share a fascination with contemporary technology in both its utopian and dystopian aspects. In one of the earliest treatises on glitch, *The Aesthetics of Failure: Post-Digital Tendencies in Contemporary Computer Music* (2000) electronic and industrial music composer, Kim Cascone maintains that art forms which apply the aesthetic of noise remind us that, "The tendrils of digital technology have in some way touched everyone...Indeed, 'failure' has become a prominent aesthetic in many of the arts in the late 20th century, reminding us that our control of technology is an illusion, revealing digital tools to be only as perfect, precise and efficient as the humans who build them" (13). According to artist and new media theorist Nick Briz, computer glitches are often, in fact, the result of human error. He writes:

> Computers don't make mistakes, people do; programmers leave memory leaks, users input bad data...the computer will 'bug' out in the same predictable way given the same bad data, we only call that moment a 'glitch' when it catches us off guard. That moment can then become political when we leverage it as a tactic for political use: to call out the influence of predominantly invisible systems. (qtd. in Rourke)

By intentionally initiating computer error glitch artists demystify the computer

glitch as a random and unpredictable phenomenon and explore digital failure's critical capacity.

Contemporary glitch art production is situated within a history of artists who have grappled with the societal impact of dominant technologies. Often through the unconventional use of technologies, artists have offered insight into the effects, behaviours, conventions, and values of a world changed by advanced technological systems. Artist and theorist of cybernetics, Roy Ascott proposes in his text, *The Construction of Change* (1964), that artists have a moral duty to contribute to societal progress by understanding the implications of technology on consciousness. He frames artists as the harbinger for technological change, charged with the task of envisioning its many possibilities and alternative futures (43-44).[5] As Edward Shanken notes in the forward to Ascott's *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*:

> Ascott observed that technology changes the world, not just by physically altering the objects of experience, but by transforming the way those objects are perceived...He argued that artists have a responsibility to comprehend those technologically induced changes so that they can create models of knowledge and behaviour that offer alternative visions and possibilities for shaping the world. (44)

At this time in the 1960s Ascott contended that the art world could offer alternatives to military and commercial applications of new technologies (43). Glitch artists exercise Ascott's philosophy, using technology in innovative ways to propose alternative realities in a highly regulated digital landscape. Canadian media theorist Marshall McLuhan similarly described art as a form that enables the critical investigation of the "perception of our technologies, and their psychic

[5] Cybernetics is the science of communication and control theory that is concerned especially with the study of mechanical-electrical communication systems.

and social consequences," in his text *Understanding Media: The Extension of Man* (xi). These two authors, Ascott and McLuhan, postulated the effects of technology on their human users and the potential for artists to draw attention to these consequences in creative ways. Contemporary glitch art practices activate a 21st century negotiation of these same concerns.

In his text, *Decentralisation: Communication as Content* (1979), telecommunications pioneer and artist, Robert Adrian posits that artists traditionally offer new ways to engage with media, in order to subvert meaning within an existing technological order. The impulse to undermine conventional media interaction for creative and critical ends endures in contemporary glitch practice while presenting an aesthetic unique to the 21st century. Menkman describes the glitch genre as, "engineered disruption as critical media practice" (*The Glitch Moment(um)* 30). Glitch artists generate works that are critical of contemporary digital culture which is often unquestioningly celebrated by its users by using digital technology in unprescribed ways.

Media theorist Lev Manovich proposes in his canonical text, *The Language of New Media* (2001), that "every stage in the history of computer media offers its own aesthetic opportunities as well as its own vision of the future" (8). Glitch art mobilizes an aesthetic that is specific to an advanced technologic society that is dominated by computer technology and is threatened by its failure. The glitch aesthetic is not limited to the artistic underground discussed within this text; in fact numerous examples of its aesthetic and narrative use have appeared in popular culture since the early 1980s. For example, visual manifestations of mechanical or digital error have been applied in music videos and feature length

films such as; Cronenberg's *Videodrome* (1983), Verbinksi's *The Ring* (2002), Kanye West's music video for *Welcome to Heartbreak* (2009) and Chairlift's *Evident Utensil* (2009). The application of the analogue error or digital glitch in these cultural products secures the glitch as a formal aesthetic and as a conceptual tool that has shared technical and cultural connotations. More recently we see the glitch deployed in 2013 films, *The Hunger Games: Catching Fire* and *Man of Steel.* When a glitch occurs in the second installment of *The Hunger Games* it reveals a deeper reality within the fictional environment. The glitch informs the characters in the film that they live in a world within a world. In the film the glitch is a minor inconsistency, a crack in time that accidentally reveals the condition of a multi-layered reality, which propels the narrative forward. In *Man of Steel* a glitch occurs as a product of a signal failure during a news broadcast. This anticipates a power shift in the movie's reality and the takeover by a hostile leader. In these two films the glitch is a visual device that represents a society both apprehensive of and predicated on technical systems.

Images or video produced using the glitch process whether in popular culture or in experimental art practices often possess a fractured, jagged, or damaged appearance. Common aesthetic traits include the presence of static or noise, repeated linearity, patterned geometric shapes, and vivid and discordant colours. Glitch artists and theorists Iman Moradi and Ant Scott outline the primary visual components of the glitch in their text *Glitch: Designing Imperfection* (2009). The authors distinguish between two forms of glitch art; pure glitch and glitch-alike, distinctions Moradi first developed in his 2004 text *Gtlch Aesthetics* and which have served as lasting categories in glitch theorization. As Moradi

describes, pure glitches occur through the random and unanticipated event of technological failure. The artist then preserves the visual artifacts produced as a result of these digital errors. In contrast, glitch-alikes are the result of an artist's intentional creation of error-based conditions or the visual simulation of the results of technical failure. Moradi writes, "The pure glitch is...an unpremeditated digital artifact, which may or may not have its own aesthetic merits" (10). Artists within this category produce works by storing and exhibiting unedited and random visual occurrences of computer error often manifesting as hard-edged, pixelated, or degraded digital images. Moradi attributes some key terms to the pure glitch classification including: accidental, coincidental, appropriated, found, and real (11).

The pure glitch can be framed as a form of digital readymade – generated by a computer, but recontextualized by an artist for critical and artistic ends. The practice of capturing the random event of computer error was regularly exercised during the genre's infancy, though it has regained relevance as a component of live digital glitch performances. While it succeeds in establishing glitch art as a genre, some argue that pure glitch artworks lack a refined artistry as they merely re-present moments of digital disruption, which are encountered by chance.

The corollary, glitch alike is the most common glitch art method and describes instances when artists actively create or fabricate glitches on either the level of software or hardware. As Moradi explains, "Glitch-alikes are a collection of digital artifacts that resemble visual aspects of real glitches found in their original habitat" (10). Moradi defines the glitch-alike as: deliberate, planned, created, designed, and artificial (11). Glitch purists deride the simulative quality of

this technique claiming that the act of falsely effecting digital failure contradicts the glitch as an unanticipated event. Both forms of glitch art experimentation produce works that exhibit a fragmented, repetitive, linear and complex appearance. Glitch artists then, seek to deny the culturally held idea that digital malfunction is ephemeral, unwanted, and uncommon. Glitch artists actively produce and preserve visual artifacts to transgress digital conventions and problematize accepted notions of digital error.

Early glitch practitioners created technical glitches on the level of hardware using a process called circuit bending. Circuit bending is an analogue process that involves physically modifying the circuit board of simple machines i.e. children's toys or early video game consoles. By damaging its circuit boards the technology becomes short-circuited and partially fails, generating spontaneous and unpredictable results.

Circuit bending as a conceptual method preceded the now popular digital practice of databending, which entails the alteration of raw data to influence its interpretation by a computer. In relation to digital video files databending or datamoshing is executed through the deletion or modification of key frames, a structural component of digital video files.[6] Deleting key frames can impact the visual appearance of an entire video as the computer struggles to reassemble the components of a corrupted file. This intentional corruption manifests visually as pixellation, stuttered playback, and sliding imagery. Datamoshing is a complex process due to the fact that most video editing software automatically corrects any glitches that might occur during the editing process. To address this problem

[6] Video files are composed of key frames and in between frames. Key frames maintain that which stays the same between frames, and in between frames fill in the difference.

datamoshers use simple, often homemade, editing software that lacks the capacity to correct data glitches. This software however, is typically unsophisticated and glitchy itself, often resulting in a complete shutdown, rendering the software momentarily inoperable. It is through these volatile softwares that glitch artists can make the most striking and unpredictable digital glitch visuals. Other data-based glitch practices include cross-media visualization, which entails opening a particular file using software that it is not intended for, e.g. opening a digital image in an audio editing application or opening an audio file in a text editor. Glitch artists will then manipulate the data as it appears in the program they've chosen, resave the file, and open it in its original form. Glitch artists will also often combine two sets of data (from two JPEG files, for example), and witness the surreal and faulty images the computer then generates.

From the examples provided above it is clear that glitch artists participate in imperfect processes. Through random explorations in data corruption, glitch artists possess a limited amount of control and can merely hypothesize how the computer will react to their modifications. Glitch practices are sometimes regarded as blind experimentation and are often a provocation of chaos, reflected in the disorderly or hallucinogenic quality of the work that is often produced. Manon and Temkin write, "The limited amount of control the glitch artist maintains is often evident in the resulting image" (3). Glitch art can be critiqued for its erratic nature though its unpredictability is integral to the form. In relation to glitch music communications scholar James Brady Cranfield-Rose describes noise as a cipher, "...a question mark, forever eluding fixed definition" (13). The instability

and arbitrariness of the glitch is central to its conceptual and artistic use and reflects the occurrence of error in everyday technological engagement.

Though glitch artists cannot feasibly master glitching as an artistic practice, due to the amount of chance involved in the process and the technological constraints meant to prevent their occurrence, with time can learn to predict more accurately the outcomes of the digital corruption that they initiate. The glitch artist must constantly recalibrate their projects based on the surprise outcomes that result from their digital experimentation. At times glitch artists manipulate code so much so that digital files are entirely corrupt and uninterpretable by a computer.

In her canonical text, *The Glitch Moment(um)* (2011), Menkman describes the dynamic experience of stumbling upon a glitch. She writes, “The first encounter with a glitch comes hand in hand with a feeling of shock, with being lost in awe” (29). For Menkman this leads to the ultimate realization of a glitch's expressive potential. She writes, "But once I find myself within these ruins I also experience a feeling of hope; a triumphal sensation that there is something more than just devastation…a spark of creative energy that indicates that something new is about to be created" (“Glitch Art Manifesto” 341). Menkman conceives of glitches and the interfaces on which they are made visible as platforms for the penetrative investigation of technological function, where artists and viewers can together interrogate what digital technologies mean in a changing world and how they operate in our lives in ways that we are often unaware.

Digital Culture: Past and Present

We live in a world almost entirely transformed by digital technology (Gere 13). The ambiguous nature of glitch art counters the widespread condition of digital culture in which unpredictability is expunged systematically. The following section further describes the technological paradigm in which glitch artists operate and respond. In the beginning of his text, *Error, Noise, and Potential: The Outside of Purpose* (2011), Nunes describes the operational effects of a society predicated on digital information flows, observing that the majority of social interactions in a North American context are reliant on the efficient transfer of data within systems that attempt to banish error entirely. Citing postmodern philosopher Jean-Francois Lyotard, Nunes describes a prevailing cybernetic ideology that continues to inform contemporary digital culture referred to as the "logic of maximum performance" (3). This paradigm or mode of thought is defined by notions of an idealized world devoid of errors; operating at optimized levels of "efficiency, accuracy, and predictability" (3).

Lyotard explored this pervasive cultural logic of perfection and efficiency in his 1985 art exhibition, *Les Immateriaux.* Held at the Centre Pompidou, the exhibition investigated the cultural and social impact of new communication and information technologies. *Les Immateriaux* demonstrated Lyotard's notion that the end of grand narratives was a defining element of the postmodern condition which he theorized was a direct product of technological progress, particularly in the sectors of communication and media (Graham and Cook 21).

Network computing and the introduction of the personal computer to a mass market in the late 1960s and early 1970s contributed to this culture of

progress, control, and efficiency. Nunes claims that these social values were galvanized by the development of a post-industrial information society.[7] This cultural and technological moment was also defined by an awareness of the dangers inherent to technological progress, expressed by the military affiliations of computer research and its deployment in the Vietnam War (Gere 72). In the 21st century, many scholars recognize that North America is now firmly entrenched in an information age, which values progress and perfection, enabled by the predictability and power embedded in digital technologies. Glitch art problematizes these conditions, which define contemporary technoculture, exploiting the capacities for glitches and errors, "to enact a counter-force within systems that demand clarity, efficiency and certainty" (Proulx 22).

Gere contends that a key defining factor in contemporary digital culture is the pace at which it evolves. The accelerated rate of technological advancement leaves little room for the critical consideration of technology's effects. Gere writes:

> The concurrent development of science, media and capital under the aegis of digital technology produces a kind of fast-forward effect in which everything appears to take place at an accelerated rate and to produce dramatic change in a very short time. This excites both euphoria and terror, not least because of the shocking pace at which things happen. (14-15)

Here Gere expresses a widely shared ambivalence regarding technological progress. Menkman diagnoses the contemporary digital landscape as dominated by the maxim of the upgrade. The dogma of constant technological improvement now defines the values and behaviours of those who inhabit this digital climate. Menkman writes, "The user has to realize that improvement is nothing more than

[7] Though earlier advancements in the rationalization of industrial production are also foundational to this paradigm of maximum efficiency. Gere cites early 20th century developments by Frederick Taylor and Henry Ford as contributing to contemporary technocratic culture and its enduring emphasis on efficiency and production (73-74).

a proprietary protocol, a deluded consumer myth of progression towards a holy grail of perfection" ("Glitch Studies Manifesto" 366). The dynamics of upgrade culture offer the public no role other than that of consumers of the latest digital devices (Robins and Webster 68). Menkman reflects that, "The dominant, continuing search for a noiseless channel has been – and will always be – no more than a regrettable, ill-fated dogma" that simply perpetuates the capitalist imperatives of digital technological progress (*The Glitch Moment(um)* 11). By damaging advanced digital interfaces and denying the hi-res aesthetic of digital images glitch artists arrest the seemingly perpetual ascent towards technological perfection and refer back to previously imperfect technologies. [8]

Nick Briz's, single-channel glitch video work *A New Ecology for the Citizen of a Digital Age* (2009) examines the social conditions of contemporary digital culture and articulates anxiety regarding the rapid advancement of digital technologies. Through data corruption, datamoshing, feedback loops and analogue video his work presents the ruins of a contemporary and chaotic technoscape. Troubled by the relentless pace of American upgrade culture Briz and others claim that this trajectory will result in a technological singularity.

The concept of technological singularity was developed by science fiction writer and mathematician Vernor Vinge in his paper "The Coming Technological

[8] Menkman observes that embracing the glitch is demonstrative of a technologic nostalgia by consumers of electronics who were once accustomed to imperfect devices that required load times and were host to intermittent crashes and malfunction (which often produced visual artifacts). This impulse to return to imperfect media is also demonstrated by the development of digital applications that simulate artifacts found in lo-fi photography such as Instagram. The recurring qualities of old technologies in newer ones is discussed by Katherine Hayles in her text, *How We Became Posthuman.* Hayles applies the term skeuopmorph to describe a cosmetic design feature that though no longer functional harkens back to a technology that preceded it, allowing for its user a level of repetition that allows the new technology to be more comfortably integrated into their life. She writes, "[Skeuomorphs] call into a play a psychodynamic that finds the new more acceptable when it recalls the old that it is in the process of displacing and finds the traditional more comfortable when it is presented in a context that reminds us we can escape from it into the new" (17).

Singularity: How to Survive in the Post-Human Era" (1993) and offers an ominous prediction of a society overrun by technology. Singularity theory states, according to Moore's law, that technology will eventually progress at a faster rate than human intelligence. The principle is based on a prediction by Intel co-founder Gordon E. Moore who stated that the power of a computer chip would grow exponentially every two years as its size would decrease at the same rate. Moore produced his theory in 1965 and it has remained staggeringly accurate into the 21st century, even in terms of other technological developments including, computer processing speeds, memory capacity, and the number and size of pixels on camera chips. Futurists have adopted this concept anticipating an inevitable revolution in which robots enslave their (human) makers, with skills that transcend human capacity.

In *A New Ecology for the Citizen of a Digital Age* Briz situates himself in a not so distant future where advanced technologies have made living conditions almost unbearable. Briz is presented in this video work as the central figure. He is seen throughout the piece flickering in and out of the screen populated by a deluge of visual stimulation. The first 25 seconds of Nick Briz's video compilation is accompanied by a distinct silence, which is disrupted when the artist is seen inserting a pair of earphones. This gesture enters him into the overwhelming world of contemporary digital culture. A cacophony of noise ensues, with a collage of sound drawn from the American television talk show, *Tyra.* The voiceover describes teen pregnancy and mounts to a disorienting crescendo of staticy sound clips drawn from popular cultural sources. This opening scene creates a palpable dialect between silence and noise. This silence alludes to the

contemporary trend towards “unplugging” where it is asserted that temporary relief from the demands of digital media can be achieved by asserting control over devices by powering them down.

The beginning of Briz's piece appropriates the aesthetic of analogue distortion. The “Play” command visible in the top left corner signifies a nostalgia for a less technologically advanced society. The recognizably antiquated “Play” symbol draws attention to technology’s perpetually evolving design and surface aesthetics and our current digital condition.

Figure 1. Nick Briz, *A New Ecology for the Citizen of a Digital Age*, 2009 (still)

Briz shields his eyes as the video's soundtrack further distorts. Eventually he is completely swallowed by a sea of signal failure.

Noise manifests both visually and audibly in this work. Bright and jagged visuals invade the screen. Briz oscillates in and out of view while the sound loses and regains audibility. Midway through the video truncated audio clips of the

famed 2009 YouTube.com video, “David After Dentist”, accompany a portrait of Briz. The young David's image is projected on the artist's torso and the video again loses all visual clarity.

Figure 2. Nick Briz, *A New Ecology for the Citizen of a Digital Age*, 2009 (still)

Figure 3. Nick Briz, *A New Ecology for the Citizen of a Digital Age*, 2009 (still)

Briz's eyes appear in the pixelated chaos scored by a racket of outdated songs by American pop musicians, The Killers and Britney Spears. These musical

references are reflective of popular taste in 2009 (when the video was created) however, seem in 2014 incredibly clichéd, alluding to an accelerated obsolescence that applies not only to technology but also to the cultural products it manufactures.

Figure 4. Nick Briz, *A New Ecology for the Citizen of a Digital Age*, 2009 (still)

The screen becomes divided by a grid crowded by mass media images. Their abundance and excess render them meaningless. Briz's silhouette attempts to combat the overwhelming barrage until they all fade away.

Through this grating presentation of American contemporary culture illustrated by visual chaos and interludes of glitch artifacts Briz suggests the inescapability of digital technology in modern life. Briz is shown at times completely engulfed and unable to protect himself from digital exposure. The glitch is presented in this video as a combative force that provides agency to users of digital devices and citizens of this digital age. By linking the presence of sound and images to his movements in the video (i.e. removing his headphones

silences the soundtrack) Briz intervenes in his technological reality thereby assuaging concerns surrounding the progression towards complete domination of technology over humanity.[9]

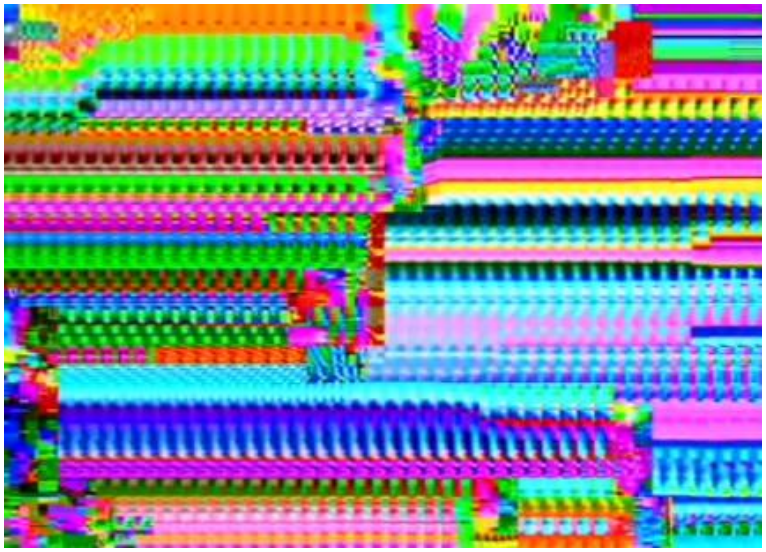

Figure 5. Nick Briz, *A New Ecology for the Citizen of a Digital Age*, 2009 (still)

Media, culture and communications scholar, David Golumbia is immediately concerned with the political and ideological impacts of digital media. In his 2009 text, *The Cultural Logic of Computation,* the author describes the discursive force of computer culture, which perpetuates structures of institutional power. He asserts that the institutional underpinnings of digital computing are often obscured by the technological rhetoric of democratization (i.e. Wikipedia) and participation (i.e. open share software). Golumbia writes, "...computationalism often serves the ends of entrenched power despite being

[9] A New Ecology for the Citizen of a Digital Age has shown in international festivals, museum installations, classrooms and online galleries. Created in his final year of film school, Briz was granted permission to complete this work as a component of an independent study, a compromise that was made because Briz's work extended beyond the program's definition of "film". In addition to this video work he completed a supplementary written element to complete the course, which materialized as the first Wikipedia entry on Glitch Art.

framed in terms of distributed power and democratic participation" (4). Rather than increasing freedom to users the author claims computers aid institutions in "centralizing, demarcating, and concentrating power" (4). Gere is equally concerned with the effects of digital technology on its users noting that they produce a type of enchantment, "…in which we are beguiled by the effects of new technologies and media, and what they seem to promise, and thus fail to see how they are part of an apparatus of dominance, control and exploitation" (19). Glitch art participates in a transgressive process that subverts the dominating mandates imposed by the digital industry and offers "a way out of the tightly-controlled power structures of digital information systems" (Proulx 4).

Alexander Galloway similarly describes the ideological nature of the digital interface in his 2012 text, *The Interface Effect,* noting that authoritative, hierarchical, and politically conservative forces are enfolded in computer culture, "It is those in power, and those who align themselves with existing structures of power, who are most often...served by the advancement of computerization" (4). Galloway warns, "Computers come with powerful belief systems that serve to obscure their real functions, even when we say we are acutely aware of the consequences of our technologies" (13).

For Nunes, error provides a critical lens to resist or subvert the ideology of the errorless information society. He writes, "...error signals a path of escape from the predictable confines of informatic control..." (3). He posits that glitches can be used strategically through hacking or artistic practice in order to deconstruct contemporary digital culture, "Error...suggests ways in which failure, glitch, and miscommunication provide creative openings…that allow for a

reconceptualization of what can...be realized within existing social and cultural practices" (4). The author goes further, suggesting that digital error has the potential to act as an interventionist gesture that no longer serves only as a disruption to flows of communication but rather "creates opportunity for alternate modes of expression" (15). Glitch art specifically explores this notion in the visual arts, exploring new technological and aesthetic possibilities in a sanitized digital domain that is destabilized by noise and technological failure. Barker maintains that the glitch has productive capacities noting, "As the potential for error marks the potential for the new and the unforeseen, we can see that an error in itself may be creative. An error may be utilized. It may be sought out and used to create the unforeseen within traditional systems, such as our routine computer use" (56). Galloway is also aware of the creative potentials of technological error, celebrating those artists that take up the "computer crashes, technical glitches, corrupted code, and other degraded aesthetics" (*Protocol: How Control Exists After Decentralization* 213). He maintains that such activities are key to the disengagement of mainstream computing practices and the politics therein. Error is framed by Nunes, Galloway, and Briz as an oppositional strategy of misdirection that defies the ideology of a society dominated by a technological logic. For these artists glitch art stands as an intervention to the constricting power structures embedded in an advanced information society, effectively proposing alternatives to a predetermined digital future.

Revelations of the Interface

The digital interface is the locus for human-computer interaction. It is also

the result of cultural, technological, economic, and political forces. The interface ranges from the hardware of particular digital devices to the software with which users interact. Since the 1960s digital technologies and their interfaces have been designed to enable unimpeded interaction. Contemporary glitch artists and theorists cite the way in which this design feature has enabled the digital interface to become increasingly transparent in this digital age. Menkman writes, “This quest for complete transparency (the perfect, invisible interface) has changed the computer system into a highly complex assemblage that is hard to penetrate, and sometimes even completely closed off” (“Glitch Art Manifesto” 339). The following accounts for glitch art as a critical engagement with technological systems that, though various, typically and intentionally obscure their presence and inner workings which with the previous section taken into consideration raises political, social and ideological concerns. This transparency allows users to remain critically indifferent about the digital media that permeate their lives. Benjamin Mako Hill contends that users can only appreciate technology's influence when it is visually and critically recognized, “To understand the power that technology has on its users, users must first *see* the technology in question” (28).

This active *seeing* of digital technologies is enabled through glitch artists’ critical representations of the digital interface - a gesture that runs counter to intentions held by interface designers. The principles that drive interface design are expressed in Steven Johnson's 1997 text, *Interface Culture,* wherein he asserts:

> The importance of interface design revolves around this apparent paradox; we live in a society that is increasingly shaped by events in cyberspace,

> and yet cyberspace remains, for all practical purposes, invisible, outside our perceptual grasp. Our only access to this parallel universe of zeros and ones runs through the conduit of the computer interface, which means that the most dynamic and innovative region of the modern world reveals itself to us only through the anonymous middlemen of interface design. (19)

In this rather optimistic text Johnson defines the interface as the most significant cultural form of his time. While the interface remains an extremely pervasive apparatus in the 21st century, glitch artists have grown suspicious of its seamless and complex design and the interactions that it mediates.

The contemporary computer interface is described in computer engineering as the graphical user interface (GUI), which facilitates computer interaction through the use of windows, icons and menus.[10] These visual components act as metaphors that conceal the underlying logical design of computer programs and software. The design of the GUI has continued to evolve since its inauguration in the 1980s with a constant aim to increase its user-friendliness and undetectability. Don Norman, a scholar in the field of usability, expresses the following in his text *Why Interfaces Don't Work*:

> The real problem with the interface is that it is an interface...If I were to have my way, we would not see computer interfaces. In fact, we would not see computers; both the interface and the computer would be invisible, subservient to the task the person is attempting to accomplish. (219)

This principle of invisibility embedded in interface design is described critically by Menkman as “transparent immediacy” (*The Glitch Moment(um)* 32). She claims that to achieve an interface that is wholly non-interfering and enables audiences

[10] Key research that contributed to the modern computer's form occurred at Apple Incorporated where Steve Jobs pursued the development many features that remain integral to modern interface design including; overlapping windows, manipulable icons, a fixed menu bar, drop down menus and a trashcan. Since the launch of the first commercially available computer in 1984 (which possessed the first widely accessible GUI system) Apple’s products have continued to “perfect” the digital interface. The iPad commercial referenced at the start of this paper refers to the third generation iPad as “a magical piece of glass”. In acknowledging the historical precedents that produced the contemporary digital interface one becomes aware of the fact that that digital media are not natural or magical phenomena they are indeed the product of ideology, research, and capitalism.

to forget the presence of the medium would signify ultimate technological progress (27). This transparency, Menkman claims, leaves its users complacent and passive. Menkman categorizes glitch art within the framework of “critical perception” offering two understandings and applications of the term criticality; an assessment of the way technology is conventionally perceived and the medium as represented in a critical state. For Menkman, glitch art disrupts the intended seamless experience of media, a seamlessness that contributes to conventionally utopian or idealistic understandings of technology.

In her 2013 essay, *(Glitch) Art Genealogies,* Menkman elucidates a category of glitch art that appropriates the GUI as a platform for creative production. She explains, “...in these [works] the GUI is exploited to enact a battle at the borders of system and entropy, standardization and corruption, expression and code, and meaning and non-meaning, thwarting the viewers' expectations and conventions of the 'usability' of a GUI”.[11] Glitch art deconstructs the elements of the interface while using it as the ground for its display.

With a critical awareness of the digital interface net artist Jennifer Chan's *Grey Matter* (2013) turns the computer screen inwards, using it as both canvas and content for her creative output. Chan uses the graphical user interface as the key visual reference in this work, proposing the GUI as semiotic material and her work’s primary mode of display. In *Grey Matter* the artist pieces together fragmented digital images and artifacts to denaturalize popular computer interfaces and to describe more broadly the contemporary North American

[11] Menkman exhibited glitch works that specifically dealt with the GUI in a 2013 glitch art exhibition, entitled *Glitch Art Genealogies,* held in Berlin at LEAP Gallery. Curated by Menkman, Daniel Franke and John McKiernan, the exhibition sought to explore the fragmented history of visual glitch artists, their methods, and conceptual themes.

technoscape. Chan artistically reassembles prescribed and familiar desktop components; the Mac rainbow wheel, desktop icons, folders and imagery from identifiable online platforms, resulting in a cacophony of digital interfaces that range in age; some ephemeral, some antiquated, and some extraordinarily contemporary. She uses a conspicuously amateur aesthetic to reflect the flood of cultural production that has emerged with technological advancement, especially in relation to Internet and computer culture. This amateurishness manifests as deliberate pixilation and visual degradation, typically undesirable elements of digital imagery.

Using earnest confessions and a glitched mirror self-portrait Chan places herself within a fragmented technological landscape framed by the contemporary computer screen. This conventional digital platform becomes both appropriated and unfamiliar. By disclosing her personal thoughts and image Chan mimics the register of online forums and social media, questioning whether authentic exchange can occur within these digital environments.

Figure 6. Jennifer Chan, *Grey Matter*, 2013 (still)

The autobiographical content and faddy Internet art aesthetics allow the video to oscillate within the interstitial spaces of the real and the digital. With a combination of obscure nostalgic media, archaic video game clips (Pokémon Yellow and Crystal) and embarrassing anecdotes from online dating websites, Chan explores her online persona and the users' specific relationship with interfaces to demonstrate the tension between genuine expression and digitized outlets. Through a collage of windows within windows Chan deconstructs the conventional computer user experience by remixing a variety of digital content generally regarded as disposable, inconsequential or confidential. Through the use of computer-based visual conventions Chan's video offers commentary on the impacts of digital culture on its users.

She also self-referentially reveals the toolbars on which she works to create her video, exposing the producer who is typically hidden behind the screen. Put together with overwhelming density, the video is a technological wasteland of social media clichés and low culture in the digital age.

At its start the video references an early simulator ride called, "Millennium Bug". Imagery of this antiquated game is an oblique reference to Y2K, the first purely technological social crisis of its kind. An allusion to the anticipated yet unrealized mass failure of algorithm-based technology recalls notions of hysteria, a term that also describes the aesthetic of this work[12]. The game and its

[12] The 'Y2K bug' or Millennium Bug' generated a host of apocalyptic predictions. As Gere notes, "Among the possible consequences was the breakdown of banking computer systems, leading to people being unable to access their money and therefore to possible social unrest…Lifts, medical equipment, air conditioning systems, elevators, were all potentially at risk, as indeed were electricity grids, traffic control systems, air control systems and any other system that used digital technology (which in effect meant almost every aspect of a developed nation's technical infrastructure)" (12).

rudimentary appearance illustrate Chan's early experience with computer imagery as a child. These antiquated visuals point to a certain nostalgia that prompts the viewer to consider their own childhood interactions with technological devices and the extent to which their appearance and function have changed over time.

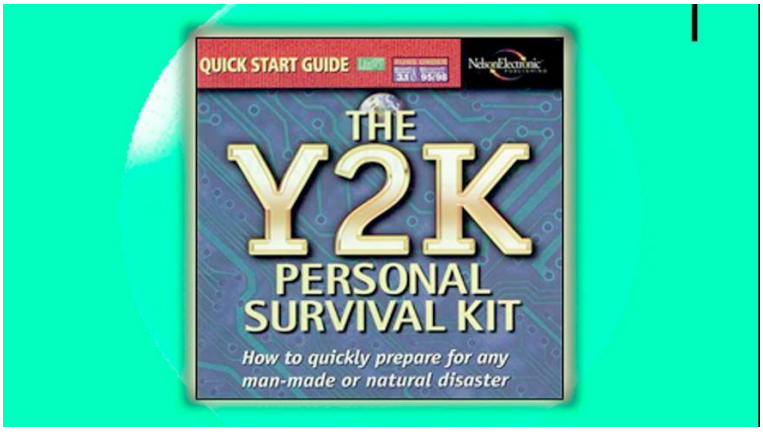

Figure 7. Jennifer Chan, *Grey Matter*, 2013 (still)

In *Grey Matter* Chan takes text from *The Little Prince,* a popular children's story about a young boy who discovers Earth anew, speeds it up 400% and compresses it 25 times through various media encoders. This process produces noisy images that are accelerated and looped to such an extent that viewers may have difficulty identifying the imagery. Paired with an equally rapid trance soundtrack the video suggests a false elation attached to technological progress.

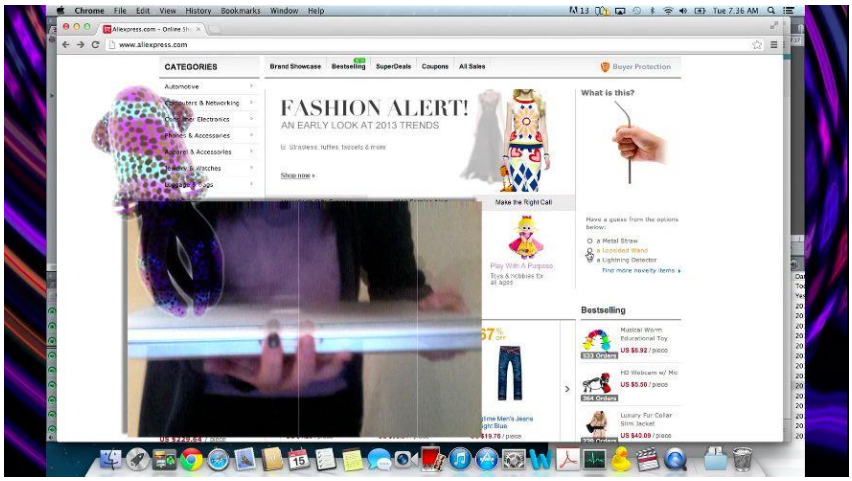

Figure 8. Jennifer Chan, *Grey Matter*, 2013 (still)

Throughout the video the viewer witnesses an onslaught of familiar interfaces that populate online experience, including outlets like OkCupid and online shopping platforms. Wavering between compression and speed modification Chan's video collage situates itself within a dialogue of technological obsolescence and notions of progress. At one point Chan is seen unwrapping a brand new Apple laptop displaying it proudly to the video's audience.
This scene expresses a moral ambivalence about a consumer culture that values the perpetual upgrade of digital devices. The imagery is chaotic and unstable reflecting the overwhelming conditions of an over-saturated digital environment.

Chan incites a criticality about the consumption of digital culture, positing that through irony and appropriation computer users and artists can negotiate their own meanings of digital forms. Through the use of computer imagery drawn especially from her personal computer Chan contemplates her position as a consumer of technology, examining the extent through which the interface mediates digital exchange and experience.

Glitch artists not only address the transparency of the interface’s surface

they also often bring to bear its coded foundation. Deconstructive glitch practices can reveal the code of which digital images are entirely composed. In his text, *Protocol: How Control Exists After Decentralization* (2004) Galloway offers a detailed description of code, highlighting its invisibility and by extension the invisibility of the technology that contains it. He writes, "Software is the medium that is not a medium...Code is never viewed as it is. Instead code must be compiled, interpreted, parsed, and otherwise driven into hiding by still larger globs of code. Hence the principle of *obfuscation*" (69). Obfuscation is the process by which code is organized and obscured in order to increase its functionality and which glitch artists actively resist. “Black boxing” is one method that contributes to the obfuscation of digital information and refers to the method used by coders to mask the information that allows it to function. For Benjamin Mako Hill black boxing is an ideological facet of computer design, “By intentionally controlling what users can see and understand, technology designers' and providers' implicit power becomes more fully entrenched and firmly enforced” (28). Hill maintains that the intentional instigation of errors applied to black boxes “can reveal hidden technology and its power” (36). Glitch artists intentionally disrupt the logic of algorithmic flow, which results in the sudden exposure of its coded origins. In the introduction to *Software Studies*, Fuller notes that software is governed by, “logical functions so fundamental that they may be imperceptible to most users” (1). In this text he highlights the importance of the de-specialization of coding practices in order to democratize technological design. According to new media art theorists, Graham and Cook, to

work with code is a kind of invisible, dematerialized activity (46).[13] The conception of code as immaterial however, drives it further into obscurity.

Galloway suggests that artists and users of digital systems must attempt to decode computer language in order to deconstruct embedded structures of control. He describes such behavior as counterprotocol activity - modes of resistance that occur both within and against digital structures (Proulx 16).

Pre-glitch Practices and Present Practitioners

In order to understand the nature and significance of the glitch art genre it is necessary to situate the contemporary practice within an art historical context. Here I provide a selective history of artists that have experimented with technology in order to produce their work, often invoking themes of chance, accident, and mechanical failure. This chronology addresses a range of 20th century artists who have engaged with technology in transgressive ways in order to confront their social effects. The artists and works described in the following section serve as precedents to the glitch genre as it stands today in the early 21st century.

Glitch art as a contemporary form is particularly indebted to a legacy of artists who investigated the dual quality of analogue media, as both material and immaterial through the (mis)use of analogue machines. The productive outcomes of these early artistic/technological experiments inform the aesthetic of contemporary glitch art production. Man Ray and René Clair are often cited as the first to augment film cells by hand, scratching the frames on celluloid strips, to

[13] Fuller posits that the common description of coded software as immaterial is both "trivializing and debilitating", hampering a deeper cultural and social understanding of digital structures (4).

create effects consistent with the degraded aesthetics of digital artifacts. A second generation of artists in the mid-twentieth century, John Cage, Michael Snow and Stan Brakhage, mark a continuation of artists who invoked analogue noise as an aesthetic device by damaging the physical film still or documenting the effects of impairing a machine.

Artists inspired by and critical of technology have been central to many historical avant-garde movements and possess aesthetics and attitudes that are often consistent with contemporary glitch works. Goriunova and Shulgin note, “Avant-garde artists inspired or disgusted by technology and its societal influence have created a range of artistic responses, the aesthetics of which today's glitches strangely comply with” (118). Just as artists in the 20th century grappled with the impacts of advanced machinery on their immediate reality, glitch artists interrogate the conditions of their contemporary digital environment. Glitch art, while rooted within the broad category of new media art, seems most expressive of a digital avant-gardism that continues investigations in technological normativity, imperatives, aesthetics and interaction. Mark Tribe maintains that, “Art has always been bound up with technology, and artists have always been among the first to adopt new technologies as they emerge” (xi).

20th century visual artists approached new technologies with a combination of antipathy and veneration. Artists associated with the Russian Avant-Garde movement celebrated the advancement of technologies, which they believed were capable of liberating the country’s impoverished masses. During the Russian Revolution, in 1917, artists embraced the power of technology, reimagining its applications in a changing society. As Goriunova and Shulgin

contend, Russian Avant-Garde artists integrated the aesthetics of the machine in their works, particularly speed, energy, and dynamics (115). This movement's celebration and interrogation of the mechanics of new technologies is consistent with the motives of contemporary glitch artists. Goriunova and Shulgin also identify the aesthetic congruencies between these two avant-gardes, including their use of colour, line, form, and repeating geometrical structures. They write, “The methods they used to depict movement, light, power and speed could be regarded aesthetically as grandparents of some of today's glitches” (115-116).

The Italian Futurists, bolstered by Marinetti's *Futurist Manifesto* (1909), similarly sought to address a rapidly changing social environment irrevocably altered by industrialization through the exploration of speed, perpetual motion, and constant change. The noise that defined the modern city and the technology that had permeated it became specifically fundamental in the work of Italian Futurist, Luigi Russolo. In his text, *The Art of Noises* (1913), Russolo called for the foregrounding of noise in the production of Futurist music as a rejection of the old conventions of the Russian orchestra and a celebration of the changes brought upon by advanced machines. He developed new musical devices called *intonarumori* or noise instruments inspired by the sounds of machines. Russolo's musical inventions broadened the definition of music, creating works entirely composed of noise. His compositions contained clanging, buzz sounds and hums premised on the sounds of war, industry, and urban life (Cranfield-Rose 1). Following the First World War the Italian Futurist movement evolved, acknowledging the increasingly negative (i.e. fascist) and threatening features of technology, developing a quality futurist scholar Günter Berghaus describes as

futurist angst (vii).

Tim Barker refers to the "Duchampian legacy" of contemporary digital works, linking glitch artists to those associated with the process-based works that characterize the modernist movement. Marcel Duchamp was a pioneer of the Dada movement, redefining that which constituted art through themes of chance, playfulness, and accident. Duchamp shifted the role of the artist from sole creator to facilitator by elevating mass-produced and often ugly objects to the status of fine art, thereby inaugurating the form that is today widely known as the readymade. Moradi describes glitch works as computer-generated readymades reconceptualizing this modernist innovation in the digital age (33). Duchamp further broadened the artist's definition by subverting accepted artistic principals of intention, craft, and artistic control (Gale). Exhibitions like the Dadaist, *Collage Arranged According to the Laws of Chance* (1967) celebrated the use of found materials and the unpredictable as a creative force as a means of critiquing the rational social and political structures that enabled WWI.[14] In a parallel gesture glitch artists collect and redisplay that which is regarded as digital trash to unsettle dominant technological practices. xstine burrough describes in her text, *Add-Art and Your Neighbors Biz: A Tactical Manipulation of Noise,* the way in which Dadaists "embraced noise as anti-matter" (82) in order to assess an increasingly mechanized world. burrough cites the linkages between early 20th century Dadaist practices and the artistic engagements of contemporary glitch artists, "The Dadaists transformed noise into visual art and poetry while

[14] As cyborg theorist Bruce Grenville maintains, "If in the pre-war years there was a positively perceived alignment between social progress and the ubiquitous machines, that perception shifted dramatically with the understanding of a new role for the machine as a powerful tool of death and destruction…The frightening potential of the new machine age came to the forefront of public consciousness in a manner that had not been apparent in the pre-modern period" (19-20).

contemporary [glitch] artists tactically manipulate noise…to demonstrate that noise has evolved from an erroneous part of a communication system to a central channel for artistic practice" (93).

The history of glitch art has also been associated to other canonized modernist artists by glitch art theorist Rebecca Jackson in her text "Glitch Aesthetics". She observes that Piet Mondrian's modernist paintings exhibit an order and perfection that is nuanced by an intentional, yet subtle, irregularity in line, strokes, grids and geometric forms. The rectilinear imperfection and blockiness of Mondrian's compositions are conceptually and visually congruent with glitch art aesthetics (Jackson 87). The chance-based works of Jackson Pollock have also been related to the glitch process. Pollock contended that each generation must find an artistic technique that attempts to reconcile the age in which it exists. For Pollock, this was an age of the airplane, the atom bomb, and the radio. He is quoted as saying, "I don't use the accident. I deny the accident. There is no accident, just as there is no beginning and no end" (qtd. in Menkman 76).

Through the application of unpredictability, accident, noise, and alternative uses of technology early 20th century artists critically assessed the conditions of their time. In addition to their analogue predecessors, glitch artists are dependent on the development of digital media and address the circumstances specific to this digital era. It is common in contemporary glitch works for artists to address both analogue and digital paradigms in order to explore both their technical similarities and differences.

Toronto-based glitch artist Adrienne Crossman postulates on the divisions

between analogue and digital art production in her glitch video piece *Series #1* (2013). In this work Crossman recontextualizes and transforms amateur videos that document canonical paintings exhibited in various prominent galleries around the world.[15] Crossman splices these raw videos together creating a catalogue of digitally rendered copies of well-known masterpieces. Using visual effects produced through datamoshing Crossman creates an appropriated and highly technical video montage that reflects on the disjuncture between traditional and digital art production and exhibition.

Figure 9. Adrienne Crossman, *Series #1*, 2013 (still)

At the beginning of *Series #1* an image of *Mona Lisa* appears on screen. A popular attraction at The Louvre museum in France, the renowned painting is seen overwhelmed by a swarm of onlookers attempting to capture their experience of the artwork aided by their digital devices. The famous painting appears at first identifiable and intact. The image then disintegrates into a vibrant

[15] The original video documentation was sourced from the popular video website YouTube.com.

swirl caused by the corruption of the video's data.

Pools of colour flow across the screen, changing direction at random, producing a hallucinogenic effect. These whirling blotches appear as digital brushstrokes, creating a visual analogy between effects rendered by the human hand and those simulated by computer technology. Crossman transforms this digital imagery into dynamic painterly abstractions, creating a unique array of digital mobile paintings. The *Mona Lisa* reappears unbroken only to fracture once again in an entirely new form. Through the contrast of the original image and its repeated digital corruption the viewer becomes aware of the frames that compose the digital video and the way in which their deletion generates new visual possibilities each time.

Series #1 situates canonical paintings within the realm of the digital, investigating the revolutionary impact of new media on the consumption and production of art. The re-presentation of these canonized works speak to the anti-canonical nature of the glitch genre. Indeed, glitch video works are not and cannot be displayed within the same mode as these traditional paintings. The use of the glitch within this context disrupts notions of the art historical canon, breaking apart its authoritative and exclusive underpinnings and its tendency to prize material artworks. Contrasting these two media forms (painting/glitch video) raises questions surrounding the presentation, perseveration, and production of digital art works and problematizes traditional exhibition practices.

Figure 10. Adrienne Crossman, *Series #1*, 2013 (still)

The video's appearance combines the conventional aesthetics of many glitch video pieces in its fragmentation and abstraction while adding unrepeatable textures that fluctuate from smooth and soft to jagged and geometric. An altered image of *The Scream* by Edvard Munch is included in Crossman's video, which possesses the pixelated aesthetics reminiscent of rudimentary digital imagery. The painting begins to flow out from the centre transforming into an entirely altered visual artifact. The image retains the haunting qualities of its original but translates this ominous quality into the digital domain.

Figure 11. Adrienne Crossman, *Series #1*, 2013 (still)

Drawn from the painting's unique palette the work becomes a collage of manic colours and shapes. As the video continues the viewer witnesses morphing painterly streaks each one different from the next.

Crossman's datamoshed video concludes with a colourful abstraction which appears both extremely traditional and entirely an invention of this digital age.

Figure 12. Adrienne Crossman, *Series #1*, 2013 (still)

While Crossman places glitch art within a traditional art historical context the following investigates the more modern influences, both technical and artistic, that have contributed to glitch art's present form.

Integral to the glitch genre was the development of communication and information theory in 1945 by, Claude Shannon. In his text, *The Mathematical Theory of Communication* (1945), co-authored by Warren Weaver, Shannon observes that noise is an intrinsic component of all information flows. This seminal text established noise (typically regarded as errant and undesirable) as a fundamental element of all communication transmissions. This finding informed

much artistic practice in the mid-20th century including the work of John Cage and Nam June Paik wherein the artists mobilized noise as a conceptual trope relating to musical composition, communication, indeterminacy, anti-art, and the urban environment. The theorization of noise remains today integral to developments in noise music and in contemporary visual art practices, including glitch art.

In his canonical publication, *The Mathematical Theory of Communication*, Shannon developed a linear scheme of the communication process which included 5 elements; the source of a message; the device that encodes the message for transmission; the channel along which the message is sent; the device that decodes the message; and the message's destination. He introduced noise as the 6th factor in the sequence describing it as “spurious information” (Nunes 25). In the introduction to the text Weaver explains:

> In the process of being transmitted, it is unfortunately characteristic that certain things are added to the signal, which was not intended by the information source. These unwanted additions may be distortion of sound (in telephone, for example) or static (in radio), or distortion in shape or shading of picture (television), or errors in transmission (telegraphy or facsimile), etc. All of these changes in the transmitted signal are called noise. (7)

From Weaver it is understood that noise describes the elements of a signal that are extraneous to the message being sent - originating either internally or externally while information is in transit. According to Nunes, Shannon's communication theory provides a critical link in establishing an alternative technical and theoretical relationship between “error” and “noise”.

Shannon discussed a second type of noise known as entropy, which resides in the message itself. Drawn from theories in thermodynamics, entropy outlines the principle that any system of information has the propensity to fall into

disorder. Entropic noise, in the Shannon-Weaver schema, is essential to the functioning of information. As Susan Ballard describes as a telephone engineer, "Shannon designed systems that repressed as much noise as possible, while also acknowledging that without some noise, information could not be transmitted" (62). Any functional communication model attempts to moderate the ratio between noise and signal.

In the glitch video work *Crosstalk* (2014) artist and videogame designer Ezra Hanson-White artistically visualizes Shannon's concept that all transmittable messages are accompanied by an element of noise and interference.[16] Hanson-White exacerbates this quality, actively deploying noise to obstruct and interfere with the flow of American broadcast messages. *Crosstalk* features a barrage of footage, which bleeds together in overwhelming plentitude. His imagery ranges from CCTV surveillance footage, news broadcasts, weather forecasts and government satellite streams. The video attempts to view all the data transmitted around us daily at once, presenting a collision of familiar public content with the many unknown signals and transmissions that circulate in the atmosphere. Noise possesses multiple meanings in this piece; presented as the conceptual and material consequences of an advanced technoscape as well as errant signal that arises in the transmission of information. The work's title refers to a technical term that defines a specific kind of noise. Crosstalk describes signal-based interference, which occurs during information transmission and is caused by the crossing of two channels or circuits. Hanson-White amplifies this phenomenon in this video work, intentionally crossing multiple signals at once, threatening the

[16] In *Reverberations: The Philosophy, Aesthetics and Politics of Noise* (2012) editors Michael Goddard, Benjamin Halligan, and Paul Hegarty discuss the technical and political aspects of noise. Though their analysis is largely based on noise as an aural phenomenon their insights broaden the paradigm of noise discourses.

collapse of the entire communication system.

At the video's onset the viewer witnesses a series of terms that flash and melt on screen. The words "Receive" and "Communicate" are momentarily legible.

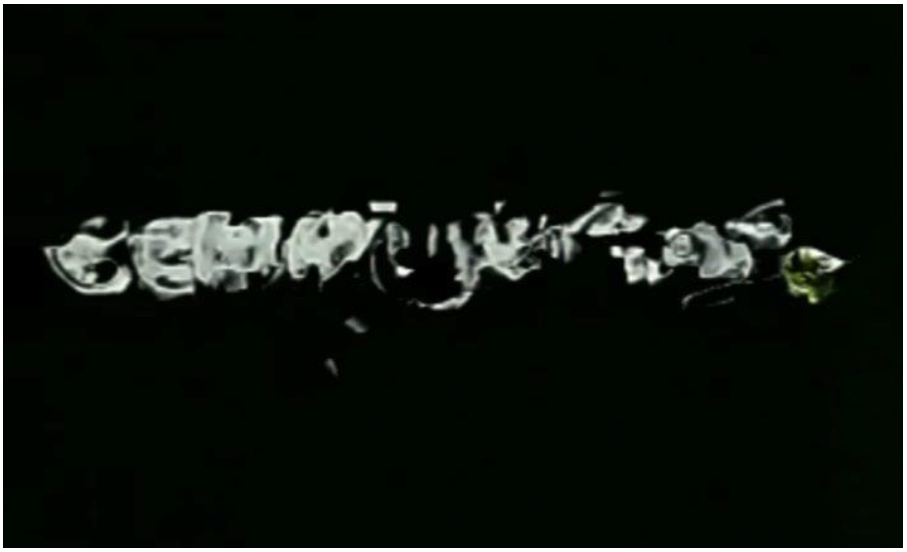

Figure 13. Ezra Hanson-White, *Crosstalk*, 2014 (still)

Figure 14. Ezra Hanson-White, *Crosstalk*, 2014 (still)

Following the introductory titles the artist invokes a pulsating image of a satellite

dish that morphs into a portrait of an anonymous newscaster. Using the datamoshing process Hanson-White creates ever-transforming visuals that maintain an otherworldly air. The news anchor appears almost alien in a spectrum of greens, pinks, and blues and is presented as one of many vessels through which information is transmitted. Through the intervention of didactic and authoritative news broadcast footage Hanson-White claims control over digital media.

Figure 15. Ezra Hanson-White, *Crosstalk*, 2014 (still)

Interspersed throughout the video are images of modern technology. Falling planes, failed spacecraft launches, and satellite footage of the earth splinter and waver, depicting a world that is as reliant on technology as it is threatened by it. Ezra Hanson-White's work is based on the conceptual and technological process of data deterioration through corruption.

Figure 16. Ezra Hanson-White, *Crosstalk*, 2014 (still)

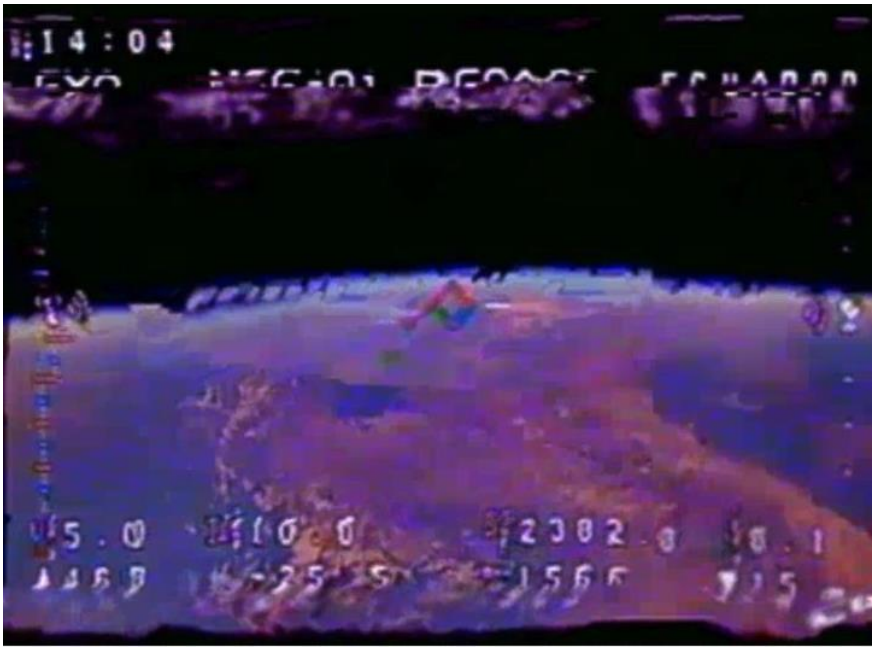

Figure 17. Ezra Hanson-White, *Crosstalk*, 2014 (still)

Presented in a psychedelic palette, *Crosstalk* offers a decayed and lo-

fidelity alternative aesthetic to the artificial perfection of contemporary digital imagery. The screen appears shattered and cluttered with noise, preventing the delivery of a coherent message. In this video compilation noise is applied as both allegory and practical method with the juxtaposition of found footage, digital video clips, and a staticy new age audio track. Using the static of an analogue past *Crosstalk* offers intimations of a foreboding digital future.[17] Visual deterioration has been primary in Hanson-White's practice, especially noise introduced while making copies of analogue recordings and glitches that surface in compressed audio & video files.

This video work by Ezra Hanson-White and other contemporary glitch works exhibit conceptual, technological, and aesthetic parallels to the Fluxus artists of the 1950s and 60s particularly in their critical application of noise and their technical experimentation with communication media. The experimental movement is known for their incorporation of randomness and chance in their works. Often citing Duchamp as their primary creative influence Fluxus artists habitually reimagined ephemeral objects in their assemblages and performances (Ronte 73). Nam June Paik and John Cage are Fluxus artists specifically known for embracing unpredictability in their creative output especially in regards to their experiments with technology.

Nam June Paik intentionally threw communication systems into disequilibrium, emphasizing noise as a distinctive feature in his practice. He began as an electronic musician, known for physically altering the instruments or

[17] The project makes reference to the artist's early computing experiences circa the late 1980s, when bugs and glitches were an accepted component of computer interaction. He cites cyberpunk and *Neuromancer* by science fiction writer William Gibson as recurring thematic references in his work relating his practice as a glitch artist to the computer hacking character in Gibson's book who occupies a dystopian techno-future.

objects with which he produced sound. In the same way Paik disassembled pianos for his musical performances in his early artistic practice, he later modified televisions for his later TV sculptures. As curator David A. Ross describes, "…in his television 'sculpture' he mechanically adjusted the circuitry, tubes, condensers, and so forth, to produce unaccustomed images – to distort the 'found' imagery or signals" (101). Ross claims that Paik's video pieces were an attempt to explore the depths of the apparatus both technically and ideologically, contributing to the development of "television's internal grammar as well as its public image" in and throughout the 1960s and 70s (102). Paik's art practice was defined by his attempt to address discourses that surrounded new television technologies through the development of a radical aesthetic that augmented the television as a formal device. Glitch art is premised on a similar conceptual foundation, expanding the computer within public consciousness and developing an alternative digital vocabulary that stretches beyond its conventional tenets of efficiency, practicality, and functionality.

In the chapter "Paik's Video Sculpture" written by John G. Hanhardt for the text *Nam June Paik* (1982) the author describes the artist's deep investigation of television technology through sculpture, videotape, and the video synthesizer (a device through which live-video signals could be distorted by mixing them with pure electronic signals). Hanhardt describes the way in which Paik "handled and manipulated [TV] in a direct and physical way" in an effort to "deconstruct and demystify" it (92). With works that include *Distorted TV* (1963) and *Magnet TV* (1965) Paik produced warped visuals by manipulating the physical, internal, and immaterial elements of television. Such experiments included damaging the

scanning mechanism in televisions to the experimental use of magnets. In *Magnet TV* (1965) Paik addressed and deconstructed the fundamental components of television technology. By placing a large magnet on the exterior of a television set Paik intentionally interfered with the mechanism's electronic signal. According to Hanhardt “The result was both the distortion of received images and the creation of abstract patterns of light on the screen's surface” (93). Through its mechanical modification Paik critically addressed TV technology and expanded its visual potentials.

Paik had a range of concerns surrounding communication technologies, which included the passivity of the viewer and the way in which television served as an authoritative vessel for the dissemination of mass media messages. As television began to proliferate American lives, Paik was compelled to reflect upon its “destructive” implications (Ross 101). As Hanhardt describes, “…once television gained a permanent place in the home – literally and figuratively – it became a powerful medium whose very pervasiveness rendered it almost invisible” (92). This sentiment is expressed time and again by the artists featured in my exhibition in addition to various other artists active in the glitch field. Contemporary glitch artists address the technologies that pervade their lives, continuing a history of artists who have been concerned with technical devices and their social and political implications. Just as contemporary glitch artists regard the computer as an ideological invention, Paik “viewed the electronic medium of television as a discourse functioning in social, cultural, political, and economic ways” (Hanhardt 92). Paik's creative output expanded the television from a uniform, one-way device to a platform of artistic production and

expression. Hanhardt writes, “Paik's strategies establish new ways of viewing television both as an object and as a medium, in terms of what it is we normally see on television, and how we relate to it” (95). In a similar gesture glitch artists foreground the computer and reconceptualise its functional and creative capacities.

Following his explorations of the television as a physical apparatus through their sculptural arrangement, Paik began dealing specifically with videotape. In *Variations on Johnny Carson vs. Charlotte Moorman* (1966) Paik recorded clips of the famous talk show *The Tonight Show*. He then placed a livewire on the videotape recording, effectively erasing the video located directly beneath the electromagnetic wire. Paik’s video works, *Variations on George Ball on Meet the Press* (1967), *McLuhan Cage* (1967) and *Electronic Orchestra No.1* (a segment in *The Medium is the Medium*)(1968) are perhaps most consistent with the glitch videos presented in *SYS.TE/M FAIL.U+RE*. For these works Paik modified the physical videotape in order to create a fast-paced mix of popular news coverage and footage which included former president Richard Nixon, Marshall McLuhan, and go-go dancers. Through these tightly-packed video collages Paik addressed mass media, its audiences, and its ability to distort its subject (Ross 104). Other works like *Global Groove* (1973) and *Guadalcanal Requiem* (1977) possess aesthetic similarities to the visual density of contemporary glitch video works as well as their frenetic, highly saturated, and collaged appearance. Ross describes the way in which Paik’s works are visually

exhausting due to their saturated presentation of information.[18]

John Cage is seen featured in *Global Groove*, a video art treatise on global communications, media-saturation, and technological pervasiveness. Cage was a frequent collaborator with Paik in the 1960s and 70s. Together they explored notions of chance, interference, and noise in their works initially in relation to musical composition. Though Paik migrated these concepts to video art, early on in his practice Cage continued to explore the potentials of noise and the physical destruction of instruments for the entirety of his artistic career. John Cage remains an extremely significant figure in all accounts of technologically-engaged art production. He is documented as one of the first artists to consider communications technologies beyond their military applications and was central to an analogue avant-garde which exploited the (dys)functionality of technology.[19] In his early works he experimented with the technological idiosyncrasies of radios and record players and was influenced by his father's involvement as an electrical engineer and inventor in the fields of medicine and submarine travel during the First World War. Charlie Gere describes Cage's work as a "...form of resistance to the immateriality, ubiquity, and virtuality of mass media and communications" (88). Cage's association with the Musique Concrete movement, especially his seminal silent composition, *4'33* (1952), introduced noise as the key conceptual component of his practice. The performance of the three part

[18] Gene Youngblood's *Expanded Cinema* offers an extensive analysis of experimental filmmakers active in the 1960s. The seminal text outlines works that have visual and technical affinities with 21st century glitch video works. Stan Brakhage, John Stehura, and Stan VanDerBeek, are among the artists cited and are lauded in the text as vital in the convergence of art and technology (246). Brakhage's *Dog Star Man* (1959-1964) and *Preludes 1-24* (1995-1996) particularly demonstrate a physical engagement with video consistent with the material explorations of contemporary glitch artists. He is known for scratching and painting on film and for his use of superimposition and fast-cuts to obscure the images that comprise his videos. His works demonstrate a frenetic materiality which seem to inform the contemporary works discussed herein.

[19] A pioneer in the 1950s and 60s, his technological compositions inspired the musical movement of Minimalism and the performance art of Fluxus.

composition is described by Gere as "...one of the canonical moments of the post-war avant-garde" (84).

The musical experiments of both Paik and Cage laid the groundwork for glitch art's earliest phase. The contemporary glitch art genre began as a style of electronic music that emerged in the late 1990s. The movement centralized glitch-based audio media, noise, and other sonic artifacts. An extensive analysis of the conceptual and technical facets of noise in music is offered by James Brady Cranfield-Rose in his 2004 dissertation, "The Glitch and the Utopian Politics of Noise". His text elaborates on the original writings of Kim Casone who described the use of malfunctioning audio recording devices, skipping CDs, digital or analogue distortion and vinyl record scratches in the production of glitch or noise music. Cascone characterized noise music as possessing an aesthetic of failure. Cranfield-Rose maintains that noise creates the possibility of an infinity of musical compositions:

> From clicks, crackles, warbles, and interference, to feedback, distortion, and the innumerable curious accidental artifacts of digital processing, the number and variety of sounds available for use in music making are forever growing, particularly in terms of noise-sounds, a special component of a possible total organization of sound". (2)

The countless possibilities made available by audio errors are also offered in processes of datamoshing and data corruption in visual glitch art. Through experimentation with an endless availability of digital files glitch artists can continue to create their aleatory works.

As artists worked into the 1960s, their practices were influenced by the political climate of the Cold War, the mounting ubiquity of electronic mass media, and the increasing threat of nuclear warfare. At this time artists were concerned

with the development of an aesthetic that incorporated the tools of electronic machines – with an emphasis on human presence in an increasingly automated, abstract, and artificial environment.

Projects such as the American national defence project, SAGE transformed the computer into a visual device with artistic capacities paving the way for the digitally engaged works that define contemporary glitch art. The following examples demonstrate instances in which computer generated artwork was celebrated within the context of both cultural and research-based institutions experiencing a level of institutional acceptance which glitch artists lack today. Writing in 1970, Gene Youngblood sets out in *Expanded Cinema* to describe preliminary experiments with the computer as a visual and creative medium. He writes, “the digital computer opens vast new realms of possible aesthetic investigation” (189). He cites John Whitney Senior as “the first of [a] new breed” of artists who were both “artistically and technologically conversant” (193). Whitney is known for his humanization of a medium typically associated with austerity and clinicality (Youngblood 207). This is demonstrated particularly in his work *Catalogue* (1961) which features floral patterns and natural organic shapes produced semi-randomly by a mechanical analogue computer. In 1966 IBM awarded John Whitney Senior the newly established position of artist in residence during which he worked to expand the graphic potential of computer technologies. In the same year Charles Csuri created *Hummingbird* using the computer as his primary creative instrument. The Museum of Modern Art in New York later purchased the work for the museum's permanent collection. The exhibition *Cybernetic Serendipity* (1968) is lauded as one of the most significant

exhibitions in the early days of technological art, and included computer-based music, cybernetic installations, and computer-generated film and graphics. Curated by Jasia Reichardt, the exhibition took place at the Institute of Contemporary Arts in London, UK and was the first exhibition to explore the many artistic applications of computer technology. The works ranged from music, poetry, dance, sculpture, installation and animation. It is estimated that there were 350 contributors to the exhibition, including 43 artists, composers, and poets, and 87 engineers, computer scientists and philosophers. The exhibition's curator was particularly interested in the unpredictability of new computer technologies and the productive results of experimentation.[20]

The emergence of computer hacking culture in the 1960s added to this productive field of critical media consciousness. Hacking originated as a practice in the computer laboratories of The Massachusetts Institute of Technology and Stanford, wherein a culture developed among computer students who were interested in testing the capacity of the computers they created. These individuals contributed to a counter-cultural community that was invested in the revolutionary potential of computation (Gere 136). By the 1970s the deconstructive and anti-establishment intentions of hackers were regarded as threatening to the established technological order. Hacking became understood as a form of resistance that was rejected by the mass media and criminalized by

[20] In the text, *The Art of David Em: 100 Computer Paintings*, museum director David A. Ross describes the work of David Em, one of the first artists to use the computer as his primary medium, as having "redefined the territory of technological art" (7). Ross describes Em's work as an attempt to grapple with anxieties surrounding an idealized future made possible by new technologies. Both Ross and Em expressed concerns about the increasing encroachment of computers and electromechanical forces into "our besieged modern lives" (7). He posits that Em's work reflects, "the twin nightmares of technofascism and global extinction which are frequently portrayed as the ultimate by-products of increased technological sophistication" (8). After the creation of his first digital pictures Em was invited to the then highly secretive research laboratories of the Xerox Corporation. There he worked with software that would eventually become the foundation of Microsoft's Paint Program. Throughout this text, Ross's conclusions about Em's computer art are analogous to questions and concerns raised by the glitch genre.

the state.[21] Hackers critically challenged a world increasingly dominated by computer technology. Gere makes explicit the correlation between hacking and digital art. He writes, “hacking as a form of symbolic and aesthetic resistance found another kind of expression in the '90s when artists started to exploit computer networks as the locus of new forms of avant-garde art practice and political activism” (197). Digital glitch artists exhibit an exploratory and disruptive sensibility shared by hackers both past and present. They are united by their sentiment to exploit the gaps in computational systems.

The Internet has been integral to the advancement of glitch art production and circulation. Internet art (net.art) specifically exploits the protocols of online networks and interactive systems. The Internet art movement and the glitch genre have intersecting foundations particularly, in their effort to exploit the specific conditions of digital media. The political possibilities of Internet art have been highly cited and are deeply related to the often critical practices of digital glitch production and their interrogation of digital communications technologies. The two genres often overlap in their categorization and conceptual underpinnings, taking up similar themes of alternative technological interaction and its intentional sabotage. Media theorist Tilman Baumgartel observes that Internet art embraces the Internet’s technical particularities and protocols. He writes, “Net art…puts known or as yet undiscovered errors within the system to its own use. It deals creatively with software and with the rules software follows in order to work.” (qtd. in Galloway 216). This demonstrates the way in which

[21] Activities across America and Germany which involved the unlawful accessing of people's computers inspired the Electronic Communications Privacy Act and the Computers Fraud and Abuse Act of 1986. The still operational Computer Emergency Response Team was established in the US in the same year and was formed to combat growing numbers of attacks on computer networks.

Internet art and glitch art are driven by a similar impulse to exploit digital systems' idiosyncrasies for artistic and critical ends.

The term net.art is itself a product of a glitch; the term was created by chance through the connection of two words that appeared in a corrupted, unreadable email message sent between Slovenian artists Vuk Ćosić and Alexei Shulgin in 1995. The only discernible text present in the damaged email was net.art, which came to describe this contemporary field.

The art collective Jodi establish the link between Internet art and glitch practices. Jodi, an art collective comprised of net.art pioneers Joan Heemskerk and Dirk Paesmans were early practitioners of the glitch genre. They have engaged in various forms of glitch since the 1980s and are cited as one of the first groups of artists to engage with computers as both the subject and content of their art making. From Galloway, "Jodi love the look of raw computer code and use it often in their work; the duo love snapshots of computer desktops; they love the aesthetic of the computer crash" (220). Jodi's work began with the modification of video game consoles and source code in order to aestheticize and facilitate video game crashes. Since 1995, Jodi has developed new and innovative ways to glitch digital objects through the corruption of code.

One of their earliest artworks is *OSS,* a CD-ROM or application that mimics the interface of a computer operating system. When deployed *OSS* occupies the computer and prevents it from functioning normally. The installation presents the user with four interface effects, which offer a myriad of deconstructive computerized experiences. For example, "%20", is designed to make the user's computer desktop flicker wildly. The section "**** ***" emulates

the computer's desktop environment but reproduces it in fractured disorder, with replicating windows and an independently moving cursor.

Artists like Jodi, disrupt the intended experience of digital technologies in order to reveal their volatility and underlying structures. Through glitch processes Jodi proposes unconventional digital engagement and nuanced aesthetic formations. Their work, *404.jodi.org* particularly addresses the fragility of digital networks. The project takes the form of a website. When a user navigates to the homepage they are greeted by a brightly coloured screen displaying the conventional 404 error message (indicating that the requested page cannot be located). After clicking the 404 indication users are invited to post text and explore what others contribute on the bulletin board system. The project then uses distortion filters to modify the messages, creating a collage of information that foregrounds the protocols of the Web page itself, “rather than trying to cover over the technology with pleasing graphics or a deliberate design” (Galloway 217). The viewer is presented with a disorderly list of numbers and symbols, on which they can click, leading them to endless iterations of the 404 page, each time in a different colour. The online installation maps the networked nature of the Internet, while offering a destabilized version of this digital domain. As Barker describes, “Jodi's formal investigation of the digital medium exploits the limitations of the digital network and the errors that are enfolded in the system” (47). Projects like Jodi’s *404.jodi.org* make apparent that most information that we receive on the Internet is reconstituted by online systems, denying the illusion of a transparent interface to information, while inviting the user to participate in the system’s momentary destruction.

Tony (Ant) Scott (aka Beflix) is regarded as the grandfather of the contemporary glitch art movement and one of the most prolific glitch artists to date. In July 2000, Scott inaugurated the website Beflix.com on which he posted imagery created from computer crashes, software errors, and the visualization of raw data. He referred to these images as pixel art, which emulated antiquated computer graphics. Scott's website and digital collection is cited as the first formalized platform for the display of glitch images.

His work investigates the devastating effects of failed technology typified by tragedies like Chernobyl and the Challenger Spacecraft explosion. Scott's *Glitch series* illustrates the fallibility of computing while exposing the binding and complicated structure of technological devices. The colours that appear in his glitch works are shared by many practitioners of the form and include burnt oranges, corrosive greens, acrid yellows, and cool blues, signifying the artist's fascination with nuclear destruction.

Scott began engaging with glitches as a child when his father brought home a calculator from his job. He experimented with the simple device and managed to produce odd symbols on its LCD screen. Much of his work is based on pixelated anomalies and corrupt files that surface on his personal computer. Though, in July 2013, Ant Scott posted an open letter on his website, entitled, *A Personal Message from Ant: I have retired from glitch,* the text that followed was a critique of both analogue and digital glitch processes. He noted, "I've been feeling increasingly trapped by the genre, and disconnected from the relentlessly technology-drive core of glitch" (Beflix.com). The letter marks the end of his long career as a glitch artist and reflects a recurring sentiment within the genre that it

is mired by technological fetishism.[22]

Rosa Menkman is regarded as the foremost expert on visual artifacts present in both analogue and digital media. She refers to glitches as "fingerprints of imperfection" not to be ignored but to be celebrated for their explorations in the advancement of technologies (*The Glitch Moment(um)* 11). She posits that glitches exist as a paradox by establishing and perpetuating aesthetic norms while providing a productive platform for new artistic visuals to emerge. Menkman contends, "…there will always be a future for glitch art because within technology there will always appear errors. Personally I hope that glitch art becomes more conceptual, so that artists become more conceptually engaged" (23). Her sentiment counters critiques of the genre as a temporary trend in digital art practices.

One of her more recent projects, *Compress Process* (2012), is a video game intended to be glitched out by its user, effectively reversing the conventional relationship between game and player. The artwork portrays a surreal videoscape in which the objective is to manipulate a floating head through a 3-D environment. The user's movements within the space generate visual artifacts, embracing the glitch artist's interest in taking familiar images and rendering them incomprehensible.

[22] As of September 2013 Scott's public message denouncing the glitch form was removed from his website.

SYS.TE/M FAIL.U+RE: Revelations of the Interface

The exhibition *SYS.TE/M FAIL.U+RE: Revelations of the Interface* contributes to the growing practice of glitch art and the critical discourses that surround it. Installed at 2186 Gallery in Toronto, Ontario, the exhibition features glitch artists Nick Briz (Chicago), Jennifer Chan (New York), Adrienne Crossman (Toronto) and Ezra Hanson-White (Seattle). Through the revelation of digital data these artists pursue new formal practices in the early 21st century while offering a critique of the social, economic and political underpinnings of digital media in a North American context. The featured artists, in the spirit of contemporary glitch art production, appropriate computer imagery and challenge conventions linked to digital culture through the subversive use of digital compressions, feedback and other forms of analogue and digital noise. The artists demonstrate an impulse common in glitch art practice to locate the constitutive material that lies both beneath and at the surface of digital objects in order to lay bare an anatomy that is often concealed from its viewers. Each featured composition remains aesthetically consistent with present glitch practices, sharing a degraded, chaotic and fragmented appearance – a departure, both visually and technically from idealized notions of technology as essentially functional. Together they offer further investigations in the semiotic meaning of error suggesting alternative perspectives and manners of stylistic expression in a world saturated by technology.

The artists that have contributed to *SYS.TE/M FAIL.U+RE: Revelations of the Interface* use technology to create unique works that are about technology itself and the behaviours and conditions that it imposes. As technology, especially

the digital screen, has become pervasive and increasingly complex, this exhibition posits that its critical consideration has become an urgent pursuit for media theorists, artists, and users of digital technology. Many new media theorists, including Charlie Gere author of *Digital Culture* (2008) and Alexander Galloway writer of *The Interface Effect* (2013) posit that users of technology generally fail to understand technology's basic function and its broader associations to dominance and control. The partnership between artists and technology in this exhibition creates opportunities for altered forms of technological interaction and for the consideration of these underlying forces within an emerging glitch art community in Toronto.

Each artist in their own way references the complex genealogy of the glitch genre and contributes to the field's ever expanding visual possibilities. Their craft relates to a genealogy of artists both analogue and digital, who have shared an impulse to break the machine and locate its essential properties in order to examine technologies' wider consequences. In *A New Ecology of a Digital Age* Nick Briz forwards a critique of the contemporary digital regime, which so celebrates technological upgrades and integration through the use of glitch processes. The artist's work deploys glitch aesthetics as a critical mode which interrogates the conditions of a digitized world. Jennifer Chan centralizes the digital interface, denaturalizing a digital form that has become so visually familiar. Through the resurrection of technological trash and glitched digital content Chan reimagines the meaning of digital technologies and their prescribed appearance as clean, organized, and rational. Adrienne Crossman's work situates glitch art within the trajectory of art history, foregrounding the nature of the genre as anti-

canonical and aesthetically challenging. Through the contrast of analogue and digital art practices Crossman identifies the enduring relationship between the two realms. Crossman's work is visually stunning in its vibrant and undulating abstraction connoting the visual possibilities latent within digital media. Finally, Ezra Hanson-White explores the creative potential of a technological phenomenon described as crosstalk, a specific form of noise caused by the crossing of two signals. He inventively applies this disruptive technical error in his compelling video piece named after the technical occurrence. The disturbance of communication flows erupts on screen as visual manifestations on the digital surface probing the constructs of communication technologies and the authoritative messages through which they are circulated.

By deconstructing the appearance of conventional digital media these artists inspire their audience to critically reflect on the digital age in which they are entrenched. Through the glitch process of datamoshing and other methods of data manipulation they offer new forms of visual expression in contemporary digital culture.

Conclusion

Despite criticisms of glitch as shallow technological fixation its aesthetics and processes continue to be practiced into the 21st century both online and offline by graphic designers, artists, and other producers of cultural products. Beginning in the early 2000s glitch art emerged as a powerful genre within the field of new media art by taking up the conceptual and visual potentials of digital error. Its practitioners continue to generate works on the border of computer use

in order to critique digital media and suggest alternative forms of digital engagement. Glitch artists have mapped a new creative space by inverting the conventionally functional connotations of the computer and exploring the margins of digital dysfunction. Through the manipulation and degradation of both software and hardware these artists capture, exploit, and produce glitch artifacts, contributing to a formal aesthetic and discourse. By insisting on the appearance and occurrence of technical error, glitch artists resist the artifice of perfect communication flows and disrupt the conception of error as fundamentally negative and non-productive.

As new digital formats develop, artists will continue to deconstruct their digital structure. In future, glitch artists may invoke interactivity, narrative, and more political dimensions in their visual and technical experimentation. Artist Darko Fritz has broadened the field of glitch in his application of the internet error message in the context of land artworks. Fritz's project, *Internet Error Messages* (ongoing), takes for its subject the internet error and displaces it from its natural technological environment. Fritz uses land and flowers to reproduce error messages that originate in the digital realm as pixels and electronic signals. Their natural form is ephemeral; his works last until the organic matter dies, illustrating the impermanent order of things as juxtaposed to the promised eternity of the technological universe. This project alludes to the ever-expanding conceptual realm of glitch practices.

The glitch aesthetic is garnering popularity in mainstream design and continues to gain currency across disciplines. The application of glitch aesthetics has been notably applied by Italian furniture designer Ferruccio Laviani

particularly in his distorted looking carved wood storage unit (2013). The glitch is also being deployed in commercial graphic design specifically by the Dutch-based firm O.K. Parking (William van Giessen and Joost van der Steern) and in textile design by Phillip Stearns. Additionally both Stearns and Vienna-based visual artist Raffael Miribung have expressed interest in the application of glitch in the context of architecture wherein error can be applied as a deliberate structural and aesthetic tool.

The confounding nature of digital error, the fact that it is typically undesirable and yet often unavoidable, makes its visual expression conceptually rich. The glitch offers infinite and dynamic possibilities in the fields of media theory, art production, and as intimated by more recent examples across multiple disciplines. Counter to predictions of glitch art's momentary popularity new applications continue to be found for this chaotic and failure-based strategy and aesthetic. Its scope continues to widen in part as a response to a global tendency towards efficiency, structure, and control. The glitch aesthetic will remain a provocative visual device as long as technology continues to function and dysfunction in a society dominated by and dependent on its presence.

Exhibition Report

The following text documents the process of curating my OCAD University MFA Thesis Exhibition, *SYS.TE/M FAIL.U+RE: Revelations of the Interface*, in partial fulfillment of my Master of Fine Arts Degree in Criticism and Curatorial Practice. Over a period of one year I have researched the multi-faceted theoretical and historical background of the glitch genre and have chosen artists for the exhibition that are significant to the field. *SYS.TE/M FAIL.U+RE* occurred at 2186 Dundas, a small one-room gallery at 2186 Dundas St. West in Toronto, Ontario. The exhibition included four new media artists, Nick Briz (Chicago), Jennifer Chan (New York), Adrienne Crossman (Toronto) and Ezra Hanson-White (Seattle) and ran from March 28th – April 2nd 2014.

Critical Premise

As discussed in the curatorial essay that accompanies this report glitch art is a genre that emerged in the digital realm in the beginning of the 21st century. A form that works intensely with the very nature of digital technology, glitch art has a unique aesthetic that is fragmented, degraded and corrupted. Glitch art wavers on the edge of the art historical mainstream and seems to be on the verge of being taken up in the context of large cultural institutions. As with many new media art forms glitch art seems to resists canonization due to its ephemerality and medium specificity. With its origins in the visual underground the glitch aesthetic and process has made the shift from disruptive online hobby to a substantive art movement - and a foundational subject of academic study. Its

wider applications in theoretical study and digital media critique have been discussed in a myriad of edited anthologies including Mark Nunes's *Error: Glitch, Noise, and Jam in New Media Cultures* (2011), online forums including Rhizome.org, and academic texts including Rosa Menkman's canonical glitch art manifesto, *The Glitch Moment(um)* (2011) and Iman Moradi and Ant Scott's, *Designing Imperfection* (2009). These texts show that digital glitch is capable of revealing integral questions surrounding the place of technology in contemporary culture. Through the revelation of the digital object's structural elements the glitch creates a dynamic platform to investigate the social, political, and cultural effects of technological invisibility.

Research and Methodology

My interest in the glitch genre originated in March 2013 after attending one of the first exclusively glitch art exhibitions in Toronto entitled, *The Aesthetics of Failure* at storefront gallery Videofag. Curated by Adrienne Crossman the exhibition featured works by 20 glitch artists and included several media forms. The exhibition ran from March 25th – March 27th 2013 and explored the glitch as a unifying theme that applied to both analogue and digital media. Following the exhibition I was fascinated by the theoretical capacities of the glitch as both an aesthetic and concept.

I began my primary research adopting the research methodologies of glitch artists and theorists Iman Moradi and Ant Scott. In their text *Glitch: Designing Imperfection* (2009) the authors conducted interviews with glitch artists

from around the world in order to investigate their motivations for participating in the field. I contacted curator Adrienne Crossman and Stan Kryzanowski, a participating artist in *The Aesthetics of Failure* and instructor at OCAD University to further investigate the conceptual underpinnings of the glitch form.

In an interview on June 17th 2013 Crossman and I discussed her curatorial vision for *The Aesthetics of Failure*. She offered the resources that she used as the basis of her exhibition. These included Rosa Menkman's *The Glitch Moment(um)* and the text which inspired the exhibition's name, *The Aesthetics of Failure* by Kim Casone. She also provided me with several names of practicing glitch artists largely from Toronto. She described her introduction to glitch art via the Internet. She also taught herself various glitch techniques through YouTube tutorials.

In conversation with Stan Kryzanowski on August 14th 2013, he described his long artistic career in woodworking and experimental video. He explained how his experience with the physical material of both wood and analogue video inform his recent experiments in glitch video art. For the piece that he exhibited in the *Aesthetics of Failure* Kryzanowski explained that he went into his own archives and looked for videos that could be enhanced through datamoshing.

He described datamoshing as a way in which to better understand the essential structures of video itself. Using homemade editing software he found when working on a project the software he was deploying would often crash, which became part of his productive process.

Preceding his explorations in datamoshing Kryzanowski engaged in a practice he described as video decay. This often involves the posting of a video online and experimentation with a web browser's limited ability to transfer information. The protocols of the Internet effected the presentation of videos he had converted into HTML. For example, in his piece entitled, *A Spinning Lathe Faceplate* (2009), Kryzanowski posted the same video 25 times on a single webpage. The web browser would attempt to play all 25 of the identical video sequences simultaneously, but inevitably glitches would occur, eventually causing all of the videos to play out of sync (a phenomenon he describes as sync decay). He explained that with this project he tried to “choke the web browser” while trying not to “kill it”. He concluded, “If it doesn't choke enough it's not interesting, if it chokes too much it doesn't function and it's boring”.

He conceives of his video and computer work as a performance by the machine where the work appears not quite broken but in the process of breaking. When asked about the randomness of much glitch production he noted that he can predict what will happen on his computer screen but he is frequently wrong, which he finds pleasing. For Kryzanowski, a newly inaugurated datamosher, his origins as a wood-maker are not far behind. He cited the unpredictable nature of wood including the distorting and misshaping that occurs with moisture. This level of chance partnered with his explorations in the fundamental nature of the materials he works with, informs his glitch practice.

Preliminary Exhibition: TWO ASTRONAUTS

I curated the glitch art exhibition *TWO ASTRONAUTS* at Hashtag Gallery in Toronto from August 8th – August 13th 2013. Curating this exhibition provided me with experience working with glitch artworks and prepared me both theoretically and logistically for the installation of my thesis exhibition. The exhibition featured glitch works displayed on stretched canvas, as digital prints, projections and needlepoint. The artists included Neal Alexander Armstrong and Devon Marinac with a collaborative piece by Armstrong and artist, E. Laika. The choice to exhibit the works almost entirely in material form was in part an attempt to draw attention to the potential tangibility of digital information. This concept was especially demonstrated by artist, E. Laika's needlepoint piece, *Portrait of Neal in Stitches* (2013), which replicated an existing digital glitch work by Armstrong entitled *Self-Portrait as Brick Wall* (2013). The artists' decontextualion of glitches from their origins on a computer screen allowed for a variety of visual manifestations. At the opening reception artist, Thomas Cade performed an A/V installation with digitally distorted projections and a noise music compilation. I found that the audience was generally unfamiliar with glitch art and were eager to listen to explanations provided both by myself and the artists.

Armstrong's glitch practice is premised on notions of challenging what he describes as technological fascism. Through his work he denies technological perfection and seeks to disrupt a lack of criticality in our daily interaction with machines. He is inspired by communication theorist Marshall McLuhan and cultural theorist, Jean Baudrillard. In a speech given by Armstrong at the opening

reception of *TWO ASTRONAUTS* he cited Charlie Chaplin's film, *Modern Times*, imagining himself not only as a metaphorically cog in the machine but as literally throwing himself into the machine's inner workings. He also referenced Rosa Menkman's notion of glitch art as a form of intervention, not only into the machinations of a digital system but extending further into the social world, capable of achieving a type of social activism.

Exhibition Review

The glitch genre has been primarily taken up in exhibition spaces across North America and Europe. Aside from the exhibitions discussed in my curatorial essay that map a number of historical shows that dealt critically and creatively with the place of technology in a changing world the following documents significant exhibitions that have engaged with the glitch genre specifically. These exhibitions have been executed in a range of venues and platforms; from white cube gallery spaces and online forums to multi-day festivals.

Glitch Moment/ums, occurred at Furtherfield Gallery in London, England, from June 8th – July 28th 2013 and was organized by Rosa Menkman. Furtherfield Gallery is the locus of much glitch art exhibition and theorization. The exhibition displayed various approaches to glitch art production. To make their works the artists hacked familiar hardware and digital devices including mobile phones and kindles. The featured artists disrupted both the software and the digital artifacts produced by software, whether in the form of video, sound or woven glitch textiles. This particular exhibition was executed in two parts, with works

accessible on the Internet and also shown in real-time at the gallery during the duration of the show. The exhibition included a component referred to as 0P3NR3P0, a glitch art repository that hosted any visual based online file format (html, jpg, gif, YouTube, vimeo, etc.) which artists were invited submit to. The digital works were then automatically included in the online component of the exhibition. 0P3NR3P0 was coded and developed by Joseph 'Yølk' Chiocchi and Nick Briz.

The *GLI.TC/H Festival* was an event that occurred in 2010, 2011 and 2012. Its original iteration was hosted in Chicago, Illinois. The following year the event expanded and was held in both Chicago, IL and Amsterdam, NL. In its third year the festival included these two previous sites and expanded again to occur partially in Birmingham, UK. The core group of organizers include significant theorists and producers in the field; Nick Briz, Rosa Menkman, and Jon Satrom. The festival included several components both exhibitionary and pedagogical including the production of The GLI.TC/H READER and video displays at multiple sites. It is described by its founders as a conference, festival and gathering place for practicing glitch artists. The festival, which is currently on hiatus, has included over a hundred participating artists and theorists since its inception and has featured video screenings, real time performances, lectures, workshops, panels and online exhibitions. The GLI.TC/H Festival is one of the largest festivals dedicated to the genre.

The Wrong Biennial was an extensive online exhibition organized by the São Paulo contemporary art organization ROJO. The exhibition consisted of

thirty online pavilions and included over 300 artists. The show marks a major development in the popular exhibition of digital art which includes both net and glitch artworks. Under the leadership of creative director David Quiles Guilló, *the Wrong* offered an open call for projects. Each selected artist was given the opportunity to curate their own pavilion resulting in a sometimes incoherent barrage of visual displays. The abundance of work reflected a weakness in Internet culture in its tendency to trade volume for quality. The density of works forced the viewer to quickly scroll through the content in an attempt to view the entire collection. *The Wrong Biennial* offered a massive assemblage of digital art work that reflects the contemporary digital art industry.

Selection of Artists and their Works

I became acquainted with the four featured artists at various times over the course of my research. I discovered Nick Briz's work during my preliminary research. His pedagogical practice is widely cited. He is known for a series of online tutorials in which he teaches the viewer various glitch video techniques. In *Glitch Codec Tutorial* Briz presents a lesson in hacking video codes to make glitch art. This tutorial also serves as a video essay that explores issues of digital influence, the politics embedded within technology and glitch's potential to make users aware of the impact of their digital devices. Briz has been extremely generous in his correspondences. We engaged in gainful academic discussion over email between May 2013 – March 2014.

He is an educator at the School of the Art Institute of Chicago as well as at the Marwen Foundation. His pedagogical strategy is founded on awareness that upon entering university his students come with a new kind of media literacy, which includes an understanding of digital production. His teaching philosophy is premised on the conviction that digital theory must be taught with a deep level of historical and critical inquiry. He writes, “Teaching as a new-media artist means encouraging a critical relationship to and engagement with our digital ecology through a diverse set of theoretical and historical contexts and the perpetual development of digital literacies” (nickbriz.com/files/TeachingPhilosophy.pdf). Briz maintains that the fallacy that technology is neutral is illustrative of a contemporary North American worldview. His students are challenged to consider the assumptions that are embedded within the digital realm. “It is important that students of digital arts and media realize that as our analog lives become increasingly digitized, it is our responsibility as cultural producers to ensure it does so in a way that reinforces our shared values and ideals” (nickbriz.com/files/TeachingPhilosophy.pdf).

I discovered Jennifer Chan's work in conversation with colleagues at OCAD University who are particularly interested in Internet aesthetics. A former Toronto resident she has been working actively on the international level in the last two years. Her work broadens the definition of glitch art to a generalized study of the (broken) interface. Her contribution in this exhibition widens the scope of glitch aesthetics.

In email correspondences between November 2013 and February 2013 the artist expressed the conceptual and technical foundations of her practice. She describes user-culture, amateur aesthetics, and ambivalence as key themes in her work. Chan describes *Grey Matter* as a manifesto on Internet culture. She writes, “I feel we've reached the point where there is so much noise and accelerated information in our lives that it is impossible to say anything authentic through social media” (Email, February 12th 2014).

As mentioned I became acquainted with Adrienne Crossman in Toronto, while visiting Videofag Gallery; a space that is known for the display of works that are challenging on the level of both form and content. Adrienne Crossman first encountered the glitch aesthetic through a music video by the band Chairlift, for the song “Evident Utensil” that used datamoshing as a central visual technique. She has since taught herself the same method using online glitch tutorials. In the fall of 2012 Crossman was involved in a datamoshing workshop at InterAccess in Toronto wherein she taught participants how to damage and glitch video files.

A friend who is currently pursuing his Master of Fine Arts Degree at Concordia University, in interactive art, recommended Ezra Hanson-White’s work to me. Hanson-White is predominantly known in online gaming communities. The likelihood that I would have come across his work without the suggestion of my peer is unlikely. His piece contributes to the diversity of artists featured in *SYS.TE/M FAIL.U+RE* and point to the range of artists that constitute the glitch art community.

Commissioning Works

Crosstalk by Hanson-White is an original piece that was created for this exhibition. Another piece by Adrienne Crossman was intended for the show but due to various reasons she did not manage to finish a new video work. Commissioning original artworks can be a challenge especially working with artists who are located internationally. I found it taxing waiting for the artists to finish their works especially in the case where one remained uncompleted. Over the course of this exhibition I had to be flexible when unanticipated obstacles arose.

Provenance

A New Ecology for the Citizen of a Digital Age (2009) by Nick Briz

This piece has been exhibited in several international festivals, and in museum, classroom, and online gallery settings. It was originally created in in 2009 as an independent project related to Briz's course work as a film student.

Grey Matter (2013) by Jennifer Chan

The work was first exhibited at the Transmediale Electronic Arts Festival 2013, Berlin. It was made for a solo screening at the Marshall McLuhan Salon at the Canadian Embassy as part of Transmediale's satellite programming. In it's original iteration the piece was installed with local sound (no headphones) in a circular pavilion with 5 screens.

Crosstalk (2014) by Ezra Hanson-White

This is the first time this piece has been exhibited.

Series #1 (2013) by Adrienne Crossman

This piece was first exhibited at *The Aesthetics of Failure* in 2013 at Videofag in Toronto, Ontario

The Venue

Gallery owner Andrew Williamson opened 2186 Dundas in May 2013. Since its inauguration the gallery has been host to a number of exhibitions that feature emerging artists and curators from Toronto, including an exhibition that I curated in August 2013 called *Fever Dreams,* which featured 35mm photographs by Thunder Bay native, Laura-Lynn Petrick. *SYS.TE/M FAIL.U+RE* was the first exhibition at 2186 that featured work from artists outside of Canada. It also marked the first digital art oriented exhibition. The space itself is small and amenable typically to solo exhibitions. Williamson has been extremely generous to the OCAD University student community and will be hosting several OCAD University thesis exhibitions this year. He also assisted in the installation of the exhibition and helped to develop installation solutions including rerouting power cables so they could be hidden from viewers.

Titling the Exhibition

The title of the exhibition *SYS.TE/M FAIL.U+RE: Revelations of the Interface* is meant to allude to the digital disruption used to produce the video works featured in the show while also referencing the broader consequences of technological breakdown. “Revelations of the Interface” was added later in the planning and research stages of the exhibition as I began to investigate deeper into the details of hardware and software and the history of the graphical user interface.

Installation Logistics

Glitch art exhibition should occur with the strategic consideration of the works' digital origins. Because of glitch art’s capacity to be circulated on the Internet it has the potential to transcend the boundaries of the formal gallery space, while presenting its own conventional exhibition challenges. I decided to exhibit these digital works in a bricks and mortar gallery because I am interested in growing the glitch art community in Toronto. Centralizing the exhibition in a concrete space generated valuable interactions between glitch art enthusiasts and practitioners. Additionally, the physical and shared experience of a glitch changes its meaning and the commonly isolated experience of the phenomenon. Exhibiting glitch works online is often a singular experience, which prevents the generation of organic discussion surrounding the works and the genre.

This was my first exclusively digital media based exhibition and it has certainly served as a learning experience, which will benefit my future

endeavours in glitch art curation. I encountered several logistical difficulties relating to the technological requirements of the work. Such challenges included media rental, power sourcing, and file formatting. The exhibition included a variety of media ranging from, a flat screen television, a digital projector, 3 iPads, and a damaged camcorder. All display devices also required stands or mounts to achieve a streamlined display, adding an additional cost to the installation.

Working with iPads was particularly challenging, as Apple products are difficult to modify for exhibition purposes. A task as simple as looping a video is a tedious process with this very structured device. Additionally, 2186 Dundas has a limited number of power outlets. The gallery owner and I had to use the space creatively to ensure the exhibition was both functional and aesthetically sound.

The acquisition of works was itself a daunting tast. Each artist offered their pieces in a different format. Because of the nature of glitch works, the files themselves were often corrupted which had the potential to produce extremely pixelated video images, threatening the integrity of the final works. Depending on the transfer method and software requirements of each work, their quality varied. The works displayed on iPads also required additional formatting.

The lighting in the gallery space had to be adjusted to accommodate the digital screens.

Sound required serious consideration in this space. Three of the video pieces were accompanied by sound. Since it was not possible to separate the works in various rooms to avoid sound bleed, I decided to display the videos that required sound on iPads with headphones. This limited the number of viewers

who could experience the video pieces at any given time. Adrienne Crossman's work, *Series #1,* is a silent piece so I decided to display it on a large screen to accommodate more viewers. The live camcorder feed installation, also had no sound component, however demanded attention to several technical details. Over twenty years old, the camcorder's battery pack and video inputs and outputs were unreliable. The degradation of the hardware however added to the fragmented aesthetic of the live video feed which was then digitally projected.

Despite the obstacles that I encountered during the installation the exhibition has offered me a number of experiences that will help me negotiate the technological demands of future exhibitions.

Budget and Funding

Funding was generously provided by OCAD University and the OCAD University Student Union. Student Union funding was acquired through an application process, which occurred in January 2014. Major costs included, media rental, artist fees, venue rental, and printing fees for promotional materials, the exhibtion’s vinyl didactics and for the catalogue.

Opening Reception

At the opening reception Thomas Cade presented a live, interactive noise performance using purpose-built sensors, digital software and modulators. The sound acted as the backdrop to the exhibition and contributed to the exhibition's noise aesthetic. Including Cade's sound piece was a significant element of the

exhibition drawing on a history of noise artists that are significant to contemporary glitch art's chronology.

Live Video Feed

A damaged camcorder was positioned in the centre of the gallery at the exhibition's opening reception. Due to the camera's age and impending obsolescence the image it produced was faulty and distorted with ghostly lines and desaturated colouration, achieving mystifying and unpredictable effects. A live feed of the camcorder's video input was displayed on a digital screen in the gallery. By situating themselves in front of the camera's degraded lens viewers were given the opportunity to witness their glitched image in real time mimicking the momentary and generative aspects of technological failure. A time stamp that read "1992" flickered on and off the video image, situating the camcorder in its temporal context informing the device's nostalgia. Additionally, a video editor from the 1990s was set-up with the video display. Viewers were invited to experiment with the video editor on which letters, drawings, and pre-programmed animations could be added. This technical display gave viewers the opportunity to view glitches in real-time and added an element of unpredictability to the exhibition.

Issues of Interpretation

An exhibition of glitch artwork should be executed with an awareness of the genre's recent emergence. To unknowing viewers a glitch can appear as a mere digital mistake, one that the exhibition's audience may be more familiar with

in their daily functional encounters with technology. The confusion that may arise when a viewer arrives on a work of glitch in a gallery setting contributes to a conversation surrounding the very nature of glitch art as a means to defamiliarize the viewer from habitual technological engagement. This may be framed as “the activation of the audience” a gesture made by Paik in his unconventional TV sculptures and videotape works.

Glitch art, at its core, raises questions surrounding our normative exchange with digital information and interfaces. By presenting what appeared to be broken screens and faulty images gallery goers were often intrigued and confused. It was assumed that the exhibition’s viewers would arrive with a limited understanding of glitch art as a form. Displaying exclusively glitch art pieces runs the risk of alienating the audience. The form relies heavily on spectators’ technical, aesthetic, and theoretical literacy. A catalogue was presented to supplement the exhibition, providing didactic information that contextualized the works to its viewers.

Closing Remarks

The exhibition was a success by way of offering an exhibition of visually arresting glitch artworks to a diverse group of artists, theorists, and gallery goers in a city where there are few outlets for the exhibition of the genre (when compared to the number of galleries that feature more conventional art forms). As a result of curating this exhibition I have established myself as an authority in the glitch field within the Toronto new media art community. I have since been

included in an upcoming program at Toronto's primary new media exhibition space, InterAccess to discuss the exhibition challenges of glitch art. I have ambitions to curate future glitch or noise themed exhibitions with works that may be interactive or analogue-based. I also have ambitions in further exploring the applications of glitch in my theoretical studies.

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